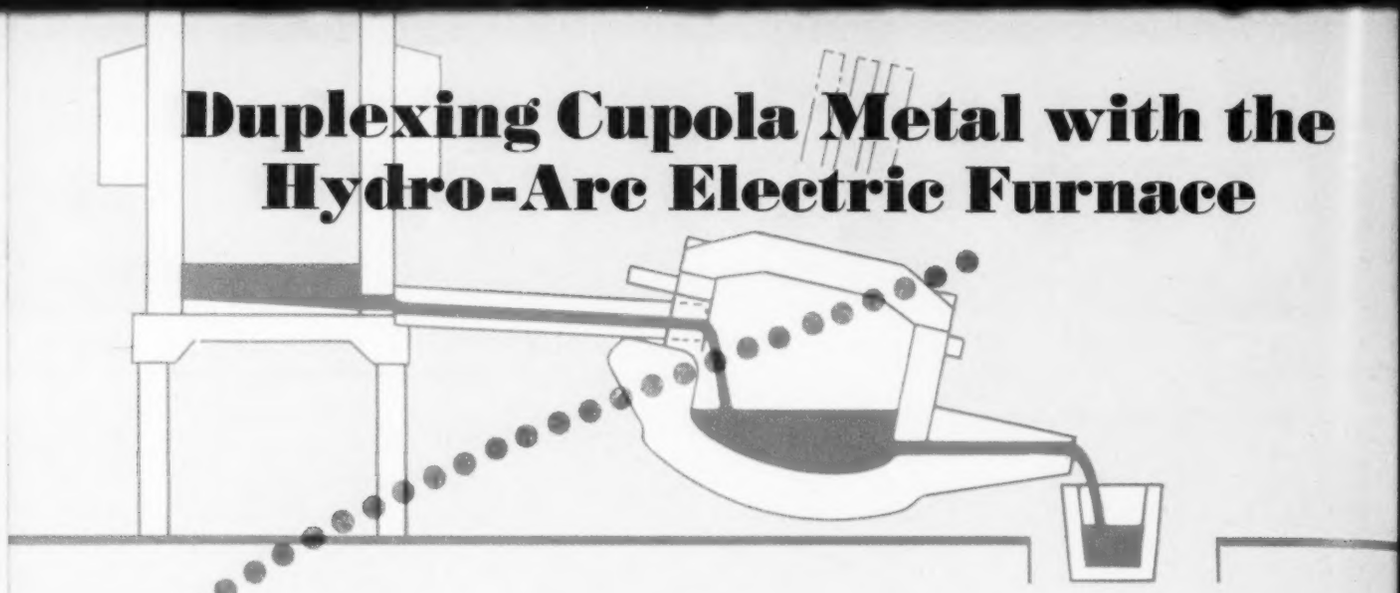
Contents page 2

THE IRON AGE

THE NATIONAL METALWORKING WEEKLY

October 26, 1950

Duplexing Cupola Metal with the Hydro-Arc Electric Furnace

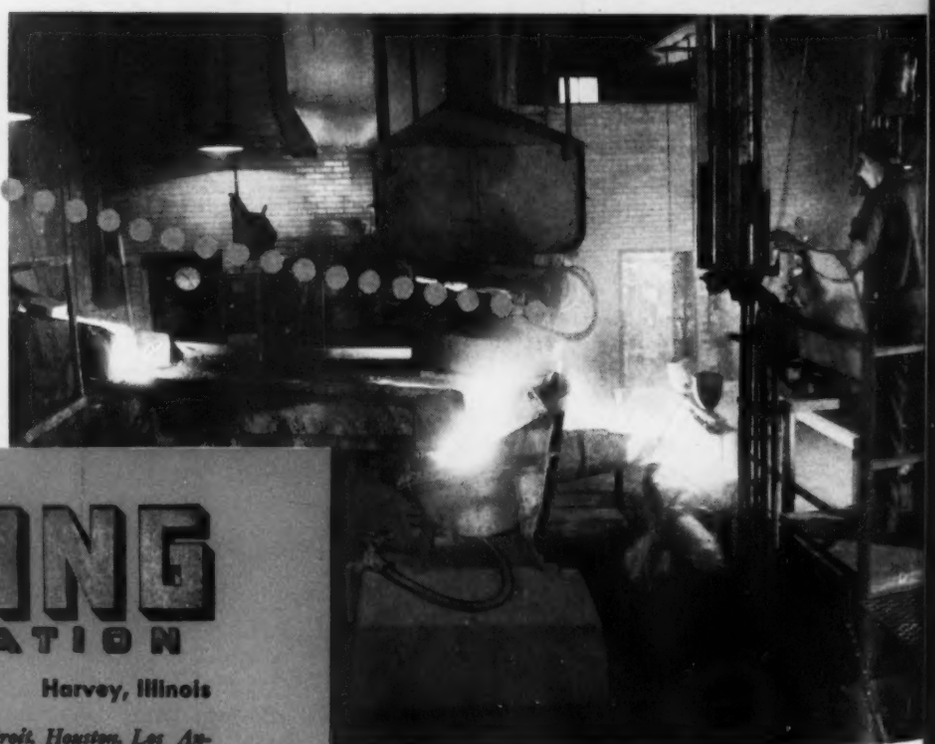


Cupola-to-electric duplexing answers many of today's foundry problems — especially those due to poor-quality coke. Foundries pouring 50 tons or more of castings per day make extraordinary savings, particularly if their castings are thin-walled or if they require subsequent machining.

Here are *some* of the benefits of cupola-to-electric duplexing:

1. Provides a reservoir of hot metal for continuous pouring
2. Assures proper pouring temperatures at all times, regardless of coke quality
3. Reheats cold metal, making pigging unnecessary
4. Provides accurate control of analysis, and increases the yield from alloys
5. Produces higher-strength, finer-grain castings
6. Reduces wear and breakage of machine tools, and increases machining speeds

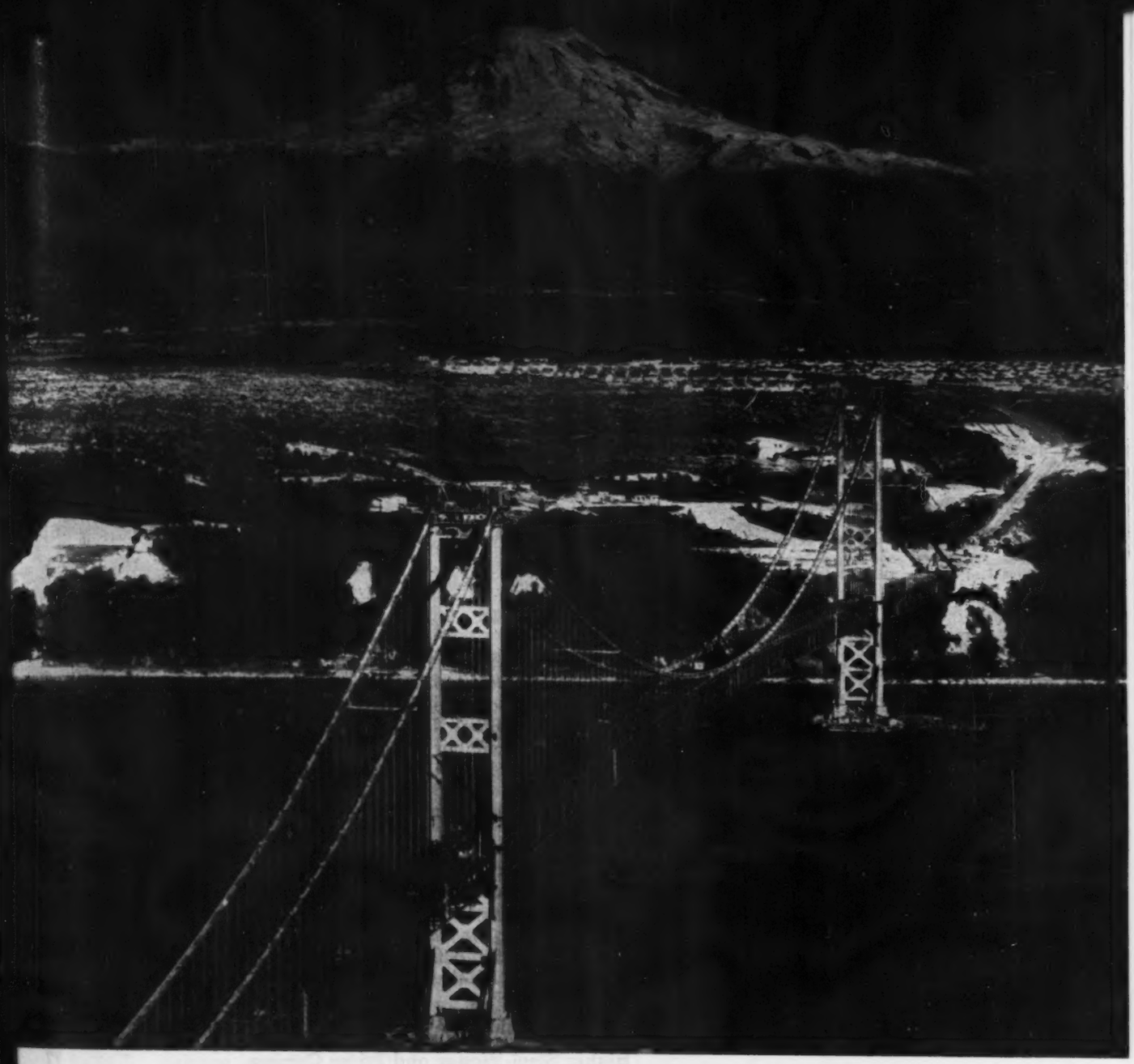
For additional benefits see our new Catalog FY-168. Write for free copy.



WHITING CORPORATION

15601 Lathrop Ave. **Harvey, Illinois**

Offices in Chicago, Cincinnati, Detroit, Houston, Los Angeles, New York, Philadelphia, Pittsburgh, and St. Louis. Representatives in other principal cities. Canadian Subsidiary: Whiting Corporation (Canada) Ltd., Toronto, Ontario. Export Department: 30 Church St., New York 7, N. Y.



STEELWORK by BETHLEHEM PACIFIC

THE TACOMA NARROWS BRIDGE, connecting the Tacoma-Seattle area with Bremerton and the majestic country of the Olympic Peninsula, is the third longest suspension span in the nation. 2800 feet between the towers, the entire bridge with its approaches measures 5000 feet in length. The main towers rise 502 feet above the water of Puget Sound and carry the 20½-inch diameter cables that support the 4-lane roadway.

The 16,000 tons of steelwork in the Tacoma Narrows Bridge was furnished and erected by Bethlehem Pacific. John A. Roebling's Sons Company of California were the cable contractors.

Engineering and design of the Tacoma Narrows Bridge were the responsibility of the Washington State Toll Bridge Authority.

BETHLEHEM PACIFIC COAST STEEL CORPORATION

BETHLEHEM STEEL

BUSINESS STAFF

GEORGE T. HOOK
Publisher

B. H. Hayes
Production Manager

O. L. Johnson
Director of Research

Charles T. Post
Manager Circulation and Promotion

Editorial, Advertising and Circulation Offices
100 E. 42nd St., New York 17, N.Y., U.S.A.

Regional Business Managers

B. L. Herman
Philadelphia 39
Chilton Bldg.

Peirce Lewis
Detroit 2
103 Pallister Ave.

C. H. Ober
New York 17
100 E. 42nd St.

Robert F. Blair
Cleveland 14
1016 National City Bank Bldg.

Stanley J. Smith
Chicago 3
1134 Otis Bldg.

J. M. Spackman
Pittsburgh 22
814 Park Bldg.

Paul Bachman
West Hartford 7
62 La Salle Rd.

R. Raymond Kay
Los Angeles 28
2420 Cheremoya Ave.

Circulation Representatives
THOMAS SCOTT
JAMES RICHARDSON

One of the Publications Owned and Published by
CHILTON COMPANY
(Incorporated)
Chestnut and 56th Sts.
Philadelphia 39, Pa., U. S. A.

Member, Audit Bureau of Circulation

ABC

Cable Address "Ironage" N. Y.

THE IRON AGE

CONTENTS

October 26, 1950 • • • Vol. 166, No. 17

Special Article

The poor low temperature performance of martensitic steels and most annealed steels is at least partly rheotropic. Face-centered cubic metals have been found to retain toughness and ductility, even at very low temperature.—p. 53.

Issue Highlights

New types of cold pressure welding are being developed to overcome objections to former methods. New developments include a better method for joining dissimilar metals, and cold welding methods for very thin sheets.—p. 58.

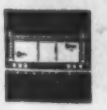
Greater sales appeal can be given products by restyling and reengineering to give appearance and performance improvements. Often, manufacturing costs can be lowered in the process of such redesign.—p. 61.

Sometime soon the steel industry will be "Johnny come lately" on wage and price increases. The auto firms started the fifth round and other industries were forced to follow and have formed the backbone of the fifth wage round increase.—p. 77.

Movement of 79 million tons of iron ore, this season's goal of the iron ore trade since the first boat locked through the Soo 3 weeks late last spring, appeared to be within reach this week.—p. 79

Inflationary forces are once more on the prowl. Increased defense spending, although necessary, is largely to blame. A roadblock to inflation is the tried and true U. S. Savings Bonds payroll system of savings.—p. 80.

Youngstown Sheet & Tube Co.'s chairman, Frank Purnell, said that his company needs more liberal depreciation allowances to put across tentative plans to spend $100 million for expansion. The firm listed other expansion.—p. 82.



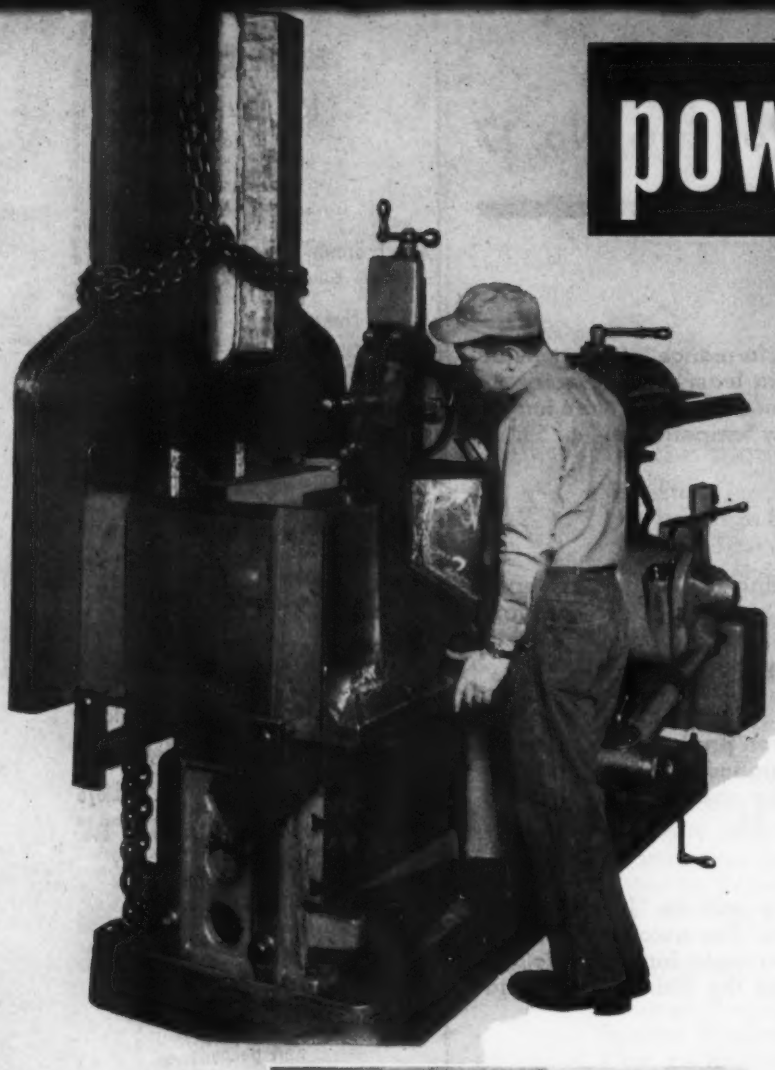
The coal industry's ambition to recapture dominance of coal as a railroad fuel was heightened with shipment of a coal burning locomotive gas turbine for testing at Dunkirk, N. Y. It may challenge diesel supremacy if it proves practical.—p. 84.

Coming Next Week

A large producer of stampings has added a zinc alloy foundry to its tool and die shop. Lost cost dies thus produced are used for die design tryouts prior to ordering permanent dies, and for short runs and experimental work.

Indexed in the Industrial Arts Index and the Engineering Index. Published every Thursday by the *CHILTON CO. (INC.)*, Chestnut and 56th Sts., Philadelphia 39, Pa. Entered as second class matter Nov. 8, 1932, at the Post Office at Philadelphia under act of March 3, 1879. $8 yearly in United States, its territories and Canada; other Western Hemisphere Countries $15; other Foreign Countries $25 per year. Single Copies 35¢. Annual Review Number, $2.00.

powerful!



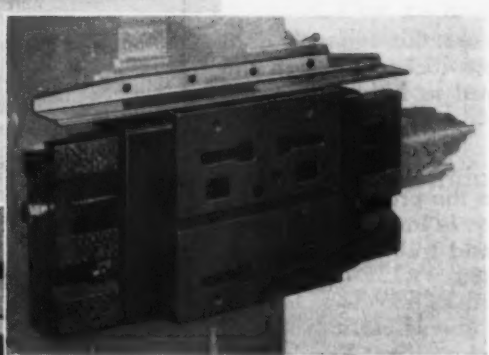
Jobs like this 5300# weldment are easy on a Cincinnati

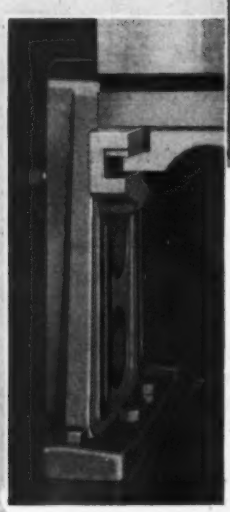
Cincinnati Shapers are powerful and dependable...

Cincinnati Shapers handle very heavy work—are powerful metal removers. They are dependable and trouble free on the most demanding jobs.

The extra long feed of the Cincinnati tool slide gives the needed range to shape the long blind hole of this large weldment. Dovetailed tool slide and accurately gibbed ram, with extended bearings, prevent chatter under these severe conditions. Table feed and power rapid traverse operate smoothly even with this 5300-lb. load.

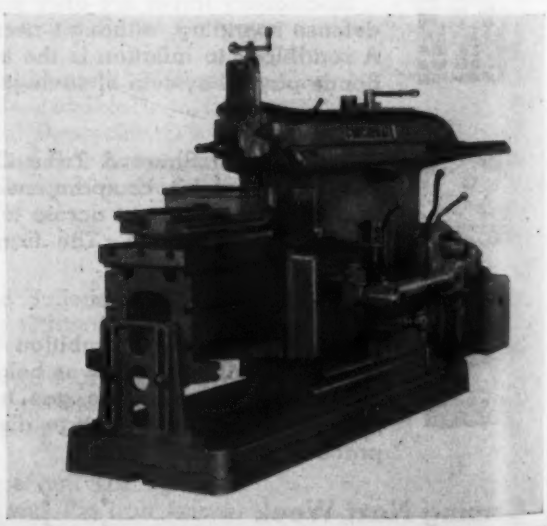
Cincinnati Shapers work to close limits and are profitable in both tool room and production departments.





This massive cross rail securely supports the apron on three automatically lubricated bearing surfaces. All controls are at the operator's position. The cross rail is square-locked to the column and automatically lubricated. Alignment is maintained by taper gibs.

This sturdy table support has the sliding action at the table and is gibbed to maintain alignment. Sliding surfaces are completely protected against dirt.



Write for Catalog N-5

THE CINCINNATI SHAPER CO.

CINCINNATI 25, OHIO, U.S.A.

SHAPERS · SHEARS · BRAKES

CINCINNATI

Editorial

INDUSTRY VIEWPOINTS

Take Care of Your Key Men

MORE and more key men are silently wondering why they are key men. Some think they should have been a first helper in the openhearth. Or a diemaker. Or maybe any kind of a skilled worker.

Some are sorry they didn't marry the boss' daughter. Others bewail not having gone to Alaska or Hawaii. Still others wish they had not married. Anything but be a key man.

Now all key men do not think this way but many do. A key man is one who thinks and acts for the boss; or is the white-haired boy; or is the one who is "picked"; or is the one who gets it done. He is, on the average, the white hope of the company, his country and his family.

Some top managements recognize this. Others don't. If they do not act soon their competitors will be happy to take over their key men. There is a shortage of people who know what to do, why they do it and where they are going. The defense program will aggravate this manpower condition.

This is the hunting season for brains, energy, loyalty and unflagging work. This is the time when some companies want a new man whom someone else has patiently trained.

Will they get him away from you? Yes! They will if you don't look out. You have an investment in your key people. Long years of training are behind that person's willingness to forge ahead with your company. You can't replace him overnight. It cost you money to bring your future management where it is today. Think well and long on that.

The fifth wage round for time clock punchers is here. Skilled men are knocking down $4,000 to $10,000 a year with no worries—and will keep it up. White collar men are not—in most cases—being kept up proportionally in salaries with wage earners.

The years ahead will be no child's play. They will be tough. They will require the kind of management that is mentally mature, physically capable and thoroughly trained and justly rewarded. The responsibility for this future management rests squarely on those in high places now.

There may be a wage-salary freeze after elections. Then it will be hard to reward those you need to help run your company. There isn't much time—if you have not done it yet. What *you* can't appreciate your competitor might—and probably will if you are too slow on the draw.

Tom C. Campbell

Editor

Good plumber + good tools + GOOD PIPE = GOOD JOB!

7 POINTS OF UNIFORM GOODNESS IN YOUNGSTOWN STEEL PIPE

- uniform ductility
- uniform lengths
- uniform threading
- uniform weldability
- uniform wall thickness and size
- uniform strength and toughness
- uniform roundness and straightness

ON a radiant heating job, it's a pleasure to work with Youngstown pipe. It bends readily to a true arc without flattening. That's because it is uniformly soft and ductile, and soundly welded in manufacture by the Youngstown continuous-weld process. The name Youngstown, rolled into every length, is your assurance that it's GOOD PIPE.

QUALITY V YOUNGSTOWN SERVICE

Youngstown STEEL PIPE

THE YOUNGSTOWN SHEET AND TUBE COMPANY

Manufacturers of Carbon, Alloy and Yoloy Steel

General Offices — Youngstown 1, Ohio

Export Office - 500 Fifth Avenue, New York

PIPE AND TUBULAR PRODUCTS - WIRE - ELECTROLYTIC TIN PLATE - COKE TIN PLATE - HOT AND COLD FINISHED CARBON AND ALLOY BARS - RODS - SHEETS - PLATES - CONDUIT - RAILROAD TRACK SPIKES.

NEWSFRONT

NEWS, METHODS AND PRODUCT FORECAST

► Less than half as many man hours are required today in blast furnaces and openhearths per ton of metal produced as were required in 1920. New equipment and technological changes are the major factor in the improvement.

► Industrial application of an improved design of the German spinning boiler will soon be made. This Huttner boiler will also be used in marine applications.

► Conversion steel ingots and time on rolling mills for conversion work are now almost impossible to get. Those who made their arrangements early this year are faring pretty well. Those who are trying to do so now with very little success argue that the steel companies should do business with one another and move conversion steel through regular channels. But steel companies, with an eye on Washington, cannot get too chummy with one another.

► One possible effect of the nickel shortage may be to reduce the number of plated service parts made by the auto industry. At least one auto manufacturer is reducing schedules on bumpers, bumper guards and grilles to channel the metal into such parts for new cars.

► A "time-base reducer" developed by the Naval Ordnance Laboratory saves weeks in appraising test data recorded in curves that may be hundreds of feet long. It uses a photographic process to compress curve length by as much as 100 to 1 without reducing height.

► Plastic insulated wire which can be laid by plane at speeds up to 120 mph is serving well in Korea, where it replaces the former rubber and fabricated insulated product.

► Lower octane gasolines are ahead; some have already appeared. Car producers who have been resisting the change to high compression engines will now stiffen their resistance to a change in their present power plants.

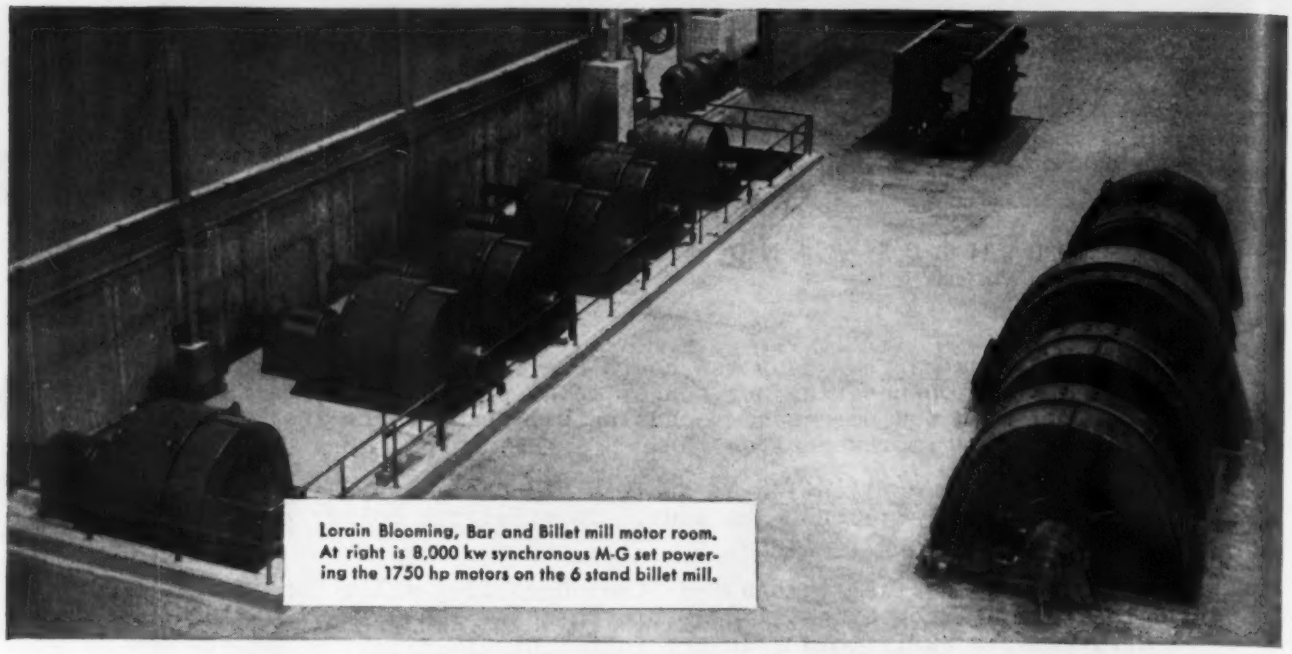
► It wasn't planned but there is now a race to see which iron ore gets here first—Quebec-Labrador or Venezuelan. Best guess is that they will both reach the home stretch early in 1955, with a possible edge for the Canadian ores.

About 200 tons of Venezuelan ore is being sent to Sweden to see if it can be economically smelted by gas reduction processes. A good report would add zip to the idea of making steel in Venezuela. Oil-rich Venezuela has plenty of gas for the process. A native plant could count on government help.

► Jet engines can now be shipped by air in a new flexible aluminum container that weighs 1000 lb less than the former wooden crates. It includes a moisture proof aluminum barrel protected by silica gel. Other applications for heavy delicate equipment are probable.

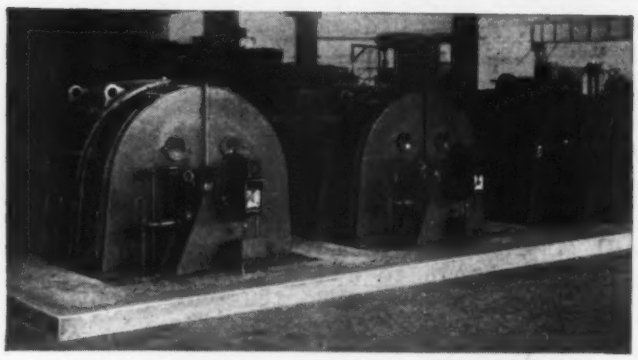
► The Air Force is testing an 8-bladed propeller built by Curtiss-Wright for turbo engines up to 15,000 hp. C-W propeller designs are one of the items involved in an exchange of designs, etc., between the American company and Armstrong Siddeley of England, jet engine builders.

Critically short cobalt and columbium are not used in the high powered British engines but probably would be needed if their power were to be stepped up a lot more.

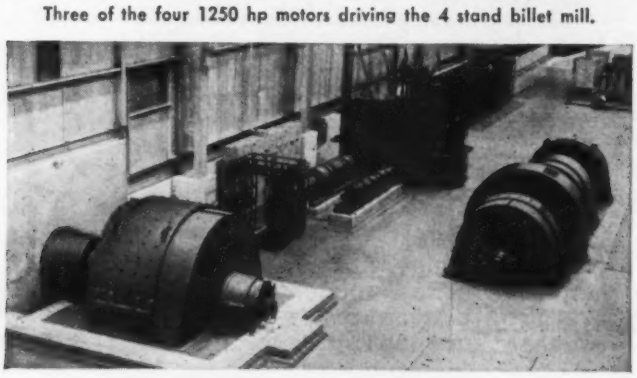


Lorain Blooming, Bar and Billet mill motor room. At right is 8,000 kw synchronous M-G set powering the 1750 hp motors on the 6 stand billet mill.

Continuous Billet Rolling Without Reheat Powered by A-C Drives at Lorain



Three of the four 1250 hp motors driving the 4 stand billet mill.



Reversing bar mill; 5000 hp motor, M-G and *Regulex* exciter sets.

CONTINUOUS BILLET ROLLING, without reheat, is a feature of the new Blooming, Bar and Billet mill at the Lorain plant of the National Tube company.

Allis-Chalmers motor-generator sets and d-c mill motors were selected for this unusual operation. And Allis-Chalmers control, including *Regulex* variable voltage exciter sets, provide the precise speed regulation required.

In addition to the 6 stand (above) and 4 stand (left) continuous billet mill drives, A-C also supplied the electrical equipment for the reversing bar mill (lower left) preceding the continuous billet mills. Here a 4000 kw, 3 machine flywheel M-G set powers a 5000 hp reversing motor. A 4000 kw, 3 machine synchronous M-G set, following 13,800 volt Allis-Chalmers switchgear, supplies the four 1250 hp motors (left) driving the billet mill.

The National Tube company, by buying associated electrical apparatus from one manufacturer, has gained undivided responsibility for equipment operation. National Tube already knew that A-C equipment is reliable; 12 motors in No. 1, 2 and 3 Seamless mills, ranging from 600 to 3500 hp, are now approaching a quarter century of service.

For up-to-date, reliable electrical equipment, contact your nearby A-C office. A-3138

ALLIS-CHALMERS, 1019A SO. 70 ST.
MILWAUKEE, WIS.

Regulex and *Ruptair* are Allis-Chalmers trademarks.

ALLIS-CHALMERS

Power, Electrical, Processing Equipment for Iron and Steel

Steel Wages, Prices Going Up

Car Builders to Get Priority

Bad News for Sheet Consumers

The Iron Age SUMMARY

IRON AND STEEL INDUSTRY TRENDS

THE steel industry will be a "Johnny come lately" on wage hikes and price increases. The boom was lowered sometime ago by auto companies, more recently by electrical equipment concerns and a few weeks ago by aluminum firms. Now it is the steel industry's turn.

Meetings and negotiations from here on out will be anticlimactic. Steel costs are up since the last general price increase in 1949. Prices on equipment, scrap, copper, tin, zinc, paper, lumber, pig iron, coal wages, oil and red tape are up considerably in the past 19 months.

Steel labor will get an average of 12¢ to 13¢ an hr raise in base rates and an additional 5¢ in fringe concessions making a total of about 17¢ to 18¢ an hr. Fringe will include changes in holidays, vacations, job classifications and pensions.

Will Take Care of Higher Costs

Steel prices will go up $6 to $10 a ton with the average somewhere near $8 a ton or about 10 pct. The changes will take care of raw material advances, labor increase (including white collar workers) uneconomical production due to defense orders and expansion cost, most of which has to come from profits.

Unless something entirely unforeseen occurs, this wage-price change in steel will happen soon.

Expected this week was announcement of NPA approval of steel requirements for three essential industries not now qualified to receive DO priorities. Government Program No. 1 will allocate the freight car builders enough steel for an 11,000 car-per-month program beginning in January. This program will call for 317,000 tons of plates, sheets, shapes, wheels, axles, etc., per month. Government Programs No. 2 and No. 3 will cover the oil and coal mining industries, respectively. These programs will take precedence over other business after DO orders have been filled.

The freight car shortage is critical. One producer has 25,000 tons of finished steel lying on the ground due to inability to obtain cars. Another smaller producer has had as much as 5000 tons piled up before cars arrived to ease the situation. However, the car building program will not reach 11,000 units per month for at least 5 months because of difficulty in obtaining materials and skilled workers such as welders.

Robbing Peter to Pay Paul

The impact of DO orders, plus these essential nonmilitary orders, will cause some steel producers to change their product mix for the first quarter of next year. One producer has already decided to slash sheet output 15 pct, tinplate 6 pct and semi-finished bars 10 pct in order to turn out more plates and shapes. Others are laying similar plans.

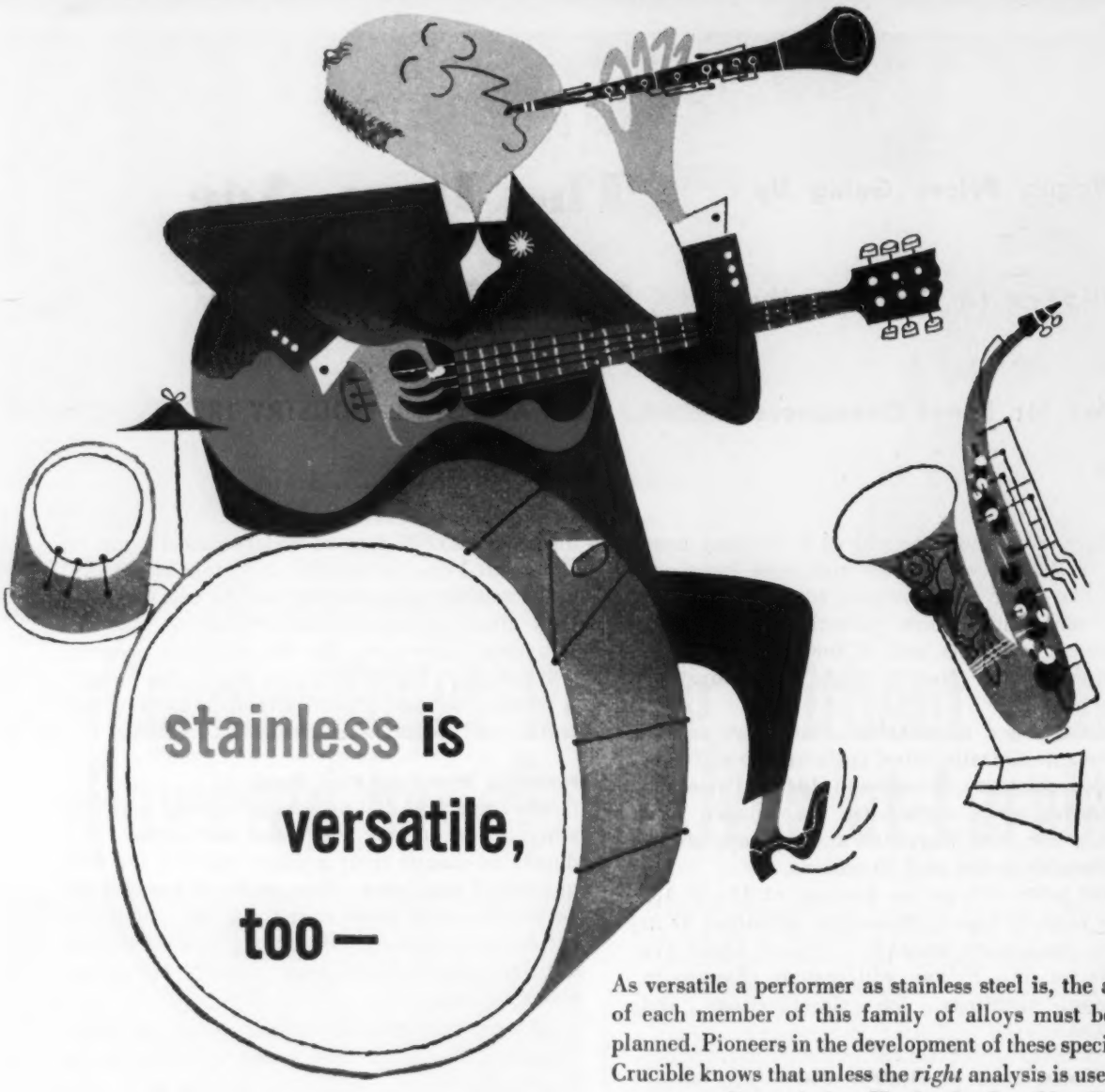
Although the greatest impact so far has fallen on plates, the 5 pct limit set by NPA on sheets is also inadequate. Moreover, cutting sheet output to boost plate production is like robbing Peter to pay Paul. This will come as grim news to many manufacturers who are already indulging in expensive conversion deals, paying premium prices, and in some cases even fabulous prices in the gray market in a frantic scramble for cold-rolled sheets.

Ingot Rate Soars Higher

There is more trouble in store for consumers who have been buying ingots from one source and paying a fee to have them converted into sheets by another mill. They are now being informed by some converters that they will have to supply slabs and billets instead of ingots for first quarter conversion. This is bound to hurt because their isn't enough blooming mill space available to break down the ingots.

Steel production records are getting commonplace. Steelmaking operations this week are scheduled at 102.5 pct of rated capacity, up ½ point from last week. This will be another new all-time record for steel melted in a single week.

(Nonferrous summary, p. 104)



As versatile a performer as stainless steel is, the application of each member of this family of alloys must be carefully planned. Pioneers in the development of these specialty steels, Crucible knows that unless the *right* analysis is used, stainless may prove disappointing. That's why Crucible offers you the services of an alert staff of metallurgists and engineers to help you apply stainless . . . properly. These engineers and metallurgists have all the wealth of experience that Crucible's half century of specialty steel leadership provides . . . take full advantage of it.

Whatever your stainless application may be, Crucible is prepared to help you. Whether the order is in pounds or tons, Crucible tackles every industry-posed problem with a keen devotion to detail. If you're thinking of stainless . . . call in Crucible. CRUCIBLE STEEL COMPANY OF AMERICA, Chrysler Building, New York 17, N. Y.

CRUCIBLE first name in special purpose steels

STAINLESS STEELS

fifty years of Fine *steelmaking*

STAINLESS • HIGH SPEED • TOOL • ALLOY • MACHINERY • SPECIAL PURPOSE STEELS

Fatigue Cracks

By PROXY

Axe Me Another

Your regular columnist is in bad shape. The Boy Scouts of America have cancelled his Eagle Scout privileges, stripped him of all merit badges except cookery and threatened to lift his medals. Trouble is Charlie swang an axe in the process of clearing his estate of deadwood; it ploughed through a rotten trunk and into Charlie's foot.

By order of the local council his axe has been dulled. We hear he is in bed with the nurse. He also has twelve stitches in him. The overseer of his estate reports he'll be in bed for a few more days. He says she's pessimistic. At last report his reflexes were no slower than usual. (This is the first chance the alleged brains dept. has had to get back at him—we've waited a long time.)

Clem Sez

We're thinking of appointing Clem Caditz an associate editor of this column because he provides the humor. This week he hits a new high:

"Almost every product you buy, 6 months ago someone was digging for it in a place called Mesabi. I understand they got a hole there so big already they can see at one end of it Venezuela and at the other end Labrador.

"In getting around I also heard that the so-called gray market was changing color [H. G. Batcheller's "Red Market" speech]. It's probably only blushing from the prices it's charging."

Pressed Freight Car

As all the world knows, we have a nasty freight car shortage in this country. Pressed Steel Car Co. thinks it can do a lot to lick it with its new Unicel car, primarily a resin bonded plywood job that saves upwards of 11 tons of steel per car. Last week they hauled it to New York and parked it on the private siding under the Waldorf-Astoria, with loud huzzas by Ben Sonnenberg to draw the customers. Ben is—it shouldn't need repeating—probably America's most successful and colorful publicity man.

Of course there were refreshments, so one of our top editors took on the assignment. Before you could get to the refreshments you had to see the car—a very practical idea. Then while you got the refreshments you were surrounded by displays highlighting the features of the car. No one could forget why he was there.

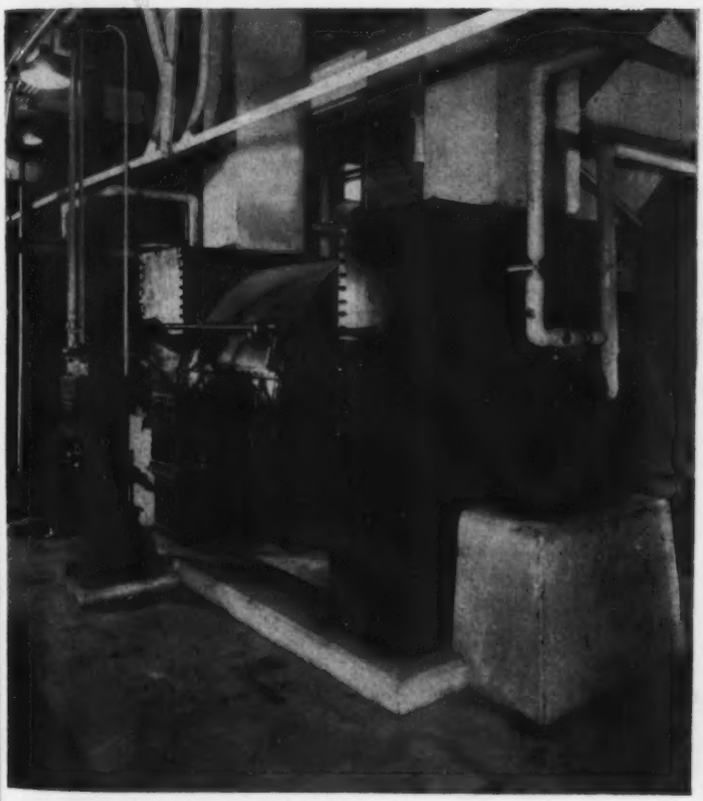
Catching the eye of our reporter was a gent whom he first mistook for a Swiss railway official: Four-button blue serge suit, stiff white collar with rolled edges crowning a dark gray stiff bosomed shirt with broad horizontal stripes, and a flowing mustache. Turns out he wasn't a Swiss railway official at all; not even a French railway president. He was Sonnenberg.

Puzzlers

Answer to the counterfeit bill story in last week's issue—and we assure you it's not a phony—is $85 and a pair of shoes. That's what it cost the broken-hearted shoe man.

Branching off into the graphic arts, hardwaremaker Robert Mahon poses this one. A printer contracts to print 4000 circulars or less at the rate of $1.00 per hundred. If the number of circulars exceed 4000, he will deduct 1¢ per hundred on the whole contract for each hundred printed in excess of 4000. For what number of circulars would the printer realize maximum receipts and what would these receipts be?

KEY INDUSTRIES DEPEND ON "Buffalo" FANS



INTERSTATE POWER CO. USES "BUFFALO" FANS FOR EFFICIENT COMBUSTION

Power Generation, key industry in industrial America, must be efficient!

This is why well-run power companies like *Interstate* have chosen "Buffalo" Draft Fans. They are heavily built where wear occurs, which means longer operating periods without replacements. They are built with all parts accessible for quick servicing and minimum down-time. High efficiencies mean driving economy, and pressure characteristics are stable over a wide range of capacities. "Buffalo" Induced Draft Fans are designed for best efficiency with high static pressure and comparatively low velocity through rotor, housing and fan cutoff, greatly reducing erosion. "Buffalo" Forced Draft Fans deliver rated air capacity even if fuel bed load is unusually heavy.

WHERE RUGGEDNESS MEANS ECONOMY!

Above photo of "Buffalo" Induced Draft Fan in Interstate Power Company's Lansing station, Lansing, Iowa, shows rugged construction. Induced draft is one of the severest services to which a fan can be subject. It's ALWAYS an economical policy to specify "Buffalo" Fans, because they *last* on the job!

WRITE FOR BULLETIN 3750, shown, for complete facts.

"Buffalo"

FIRST FOR FANS

BUFFALO FORGE COMPANY

492 BROADWAY BUFFALO, NEW YORK

Canadian Blower & Forge Co., Ltd., Kitchener, Ont., Branch Offices in all Principal Cities

VENTILATING FORCED DRAFT | AIR WASHING COOLING | AIR TEMPERING HEATING | INDUCED DRAFT EXHAUSTING PRESSURE BLOWING

Dear Editor

Letters from Readers

Anti-Commie Ammo

Sir:

Your editorial of Oct. 5, "Beware of the Lullaby," is a ZOWIE. Please send me 35 copies if you have them.

Keep it up!

E. L. SOLOMON
President

P.S. How about a new one on the dictatorship of labor, or shall we call it the Russianism in our labor set up?

Max Solomon Co.
Pittsburgh

Mistaken Identity

Sir:

I recently received the tear sheets of the article on Brazilian iron ore ["How Much Iron Ore in Brazil?" THE IRON AGE, Aug. 17 and 24]. It is a novel experience for a person whose writings have come out as sober and restrained government bulletins with standardized format and almost as standardized language to see something he has written come out so fancily done up, and I must admit that it is not an unpleasant one. I think that you all did a very nice job on the thing, generally speaking. Of course, every writer likes to have his name right, but I'm sure that my uncle, who is also in the minerals business, will get more pleasure out of the comments his friends make on his new skill in geology than I will suffer from having the paper in his name. You might send him some tear sheets so he can enjoy the pride of authorship too. The Dorr Co., 570 Lexington Ave., New York. [Now Stamford, Conn.].

If it would be possible to get about half a dozen more copies of the thing to spread around here in strategic places so it would be read by the more important Brazilians, I would appreciate it very much.

JOHN VAN N. DORR II
Geologist
U. S. Dept. of the Interior
Geological Survey
Belo Horizonte, Brazil

To Mr. John Van N. Dorr and to Mr. John Van N. Door II, our sincerest apologies. —Ed.

Present Whereabouts Unknown

Sir:

At the bottom of the first column on p. 62 of the Jan. 29, 1948, issue of THE IRON AGE, it says: "Covered by U. S. patent 2,345,338; trade name registered." We obtained a copy of this patent, for reference. However, it seems to be quite irrelevant, and we wonder if the number has been quoted wrongly.

I. A. NASH
Enfield Rolling Mills (Aluminum) Ltd.
Brimsdown, Middlesex, England

The original manuscript on the article, "Extrusion Molding Process," carried the patent number 2,345,338 as we published it in the articles. As far as we can tell, the patent number is correct. Mr. Misfeldt, the author, is living somewhere in the western United States. We do not know where he is and are unable to locate him for comment.—Ed.

Ti-mely Topic

Sir:

We would be most obliged if you could kindly forward two sets of tear sheets on "Two New Titanium Alloys Now in Production," by D. I. Brown, in the Sept. 14 issue.

Our Engineering Dept. found this item extremely interesting and the tear sheets will be circulated freely among our metallurgical engineers.

L. I. CHASEN
Engineering Librarian
Piasecki Helicopter Corp.
Morton, Pa.

Needs Plastic Coating

Sir:

Our problem consists in permanently coating stamped steel formed toes for safety shoes. We had been working on a method using polyethylene, but that material has since been frozen due to the present crisis. Because of this, different problems of serious nature are introduced. We must think in terms of a different plastic—probably vinylite.

The reason we suggest vinylite at this point is because the coating has to have flexibility among other things. You see, another real problem we have to overcome is to have a flexible feathered edge extending over one end of the stamping. This is to prevent the so called "bite" when a person is walking.

A. R. DI CHESERE
Victory Tool & Die Co.
Rochester, N. Y.

Information on a suitable plastic coating might be obtainable from the Society of The Plastics Industry Inc., 295 Madison Ave., New York. Mr. Richard Gray of the Society assures us that they will be happy to have the problem submitted to them for recommendations, if possible, or for reference to a qualified engineer.—Ed.

Ever Hear of It?

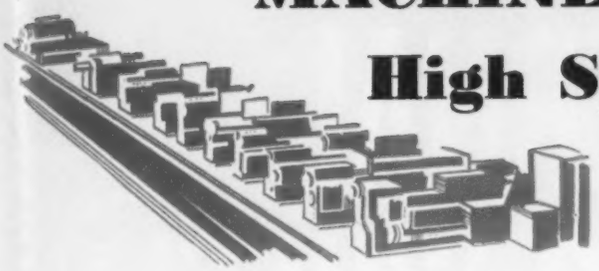
Sir:

Will you please advise who manufactures the Heim polishing machines, and their address.

J. MOSES
International Machinery Co.
Hamilton, Ontario, Canada

We do not have any record of a Heim polishing machine. So far as we know, the only firm carrying the name is the Heim Co., Fairfield, Conn., a bearing manufacturer. Perhaps one of our readers could help on this one.—Ed.

MACHINE TOOL High Spots



Sales Inquiries and Production

By W. A. LLOYD

Atlantic Pact Orders—First Atlantic Pact placements were reported this week, lending new impetus to the machine tool boom which in the past 90 days has surpassed even the wildest expectations of the industry's incurable optimists.

Adding to the psychological upsurge at least were the remarks of Sumner Schlicter, the Harvard University economist, who said in New York last week that the need for increasing plant and equipment by at least 25 pct over the next 5 years is more urgent than controlling inflation. According to Prof. Schlicter, pay as you go taxation, price ceilings and indiscriminating excess profits taxes under certain circumstances could retard an expansion of productive capacity needed for the defense program.

Prices and Delivery—A number of machine tool companies announced new price increases during the past 10 days, which as usual, squeezed in a lot of business. Average was about 7 to 10 pct. The new increases, added to those announced some 90 days ago by several of the same companies, have resulted in approximately a 15 pct increase across the board.

Extended delivery dates are a feature of the Atlantic Pact business. Some call for shipment in 12 months, others in 15. One company reported nearly half a million in new placements from this source.

Stretching DO Orders—In addition, the industry is getting plenty of DO orders. Most of these are hot stuff for prime contractors, but a number of new contractors are trying to stretch a DO order for materials into machine tools. This will get them nowhere.

However, under DO 98, it is understood, capital goods can be obtained for direct government contract work. Also, provisions permitting primes and sub-contractors to procure certain types of machines (bottleneck types, according to trade gossip) are being set up.

Reinstatement of E-1-b?—Bulk of the business is still in the unrated category, but the irony of the situation is that some suppliers of machine tool builders are now telling them, "No more shipments until we get some ratings."

This suggests that reinstatement of the E-1-b regulation, which was finally adopted for World War II purposes in May, 1942, would be a welcome adjunct to many a machine tool builder. It is a proved means of controlling the distribution of machine tools, and the industry could use it.

Drop Escalator Clauses—Escalator clauses, a device which many companies have been forced to employ as protection against advancing costs, have come in for a certain amount of complaint. As a result, at least one major company has discontinued the practice, but will guarantee current quotations for only 30 days.

In Cleveland, preliminary index of new orders for machine tools in September was 281.6, National Machine Tool Builders Assn. reported. This compares with an index of 305.1 in August and 253.1 in July. Preliminary index of foreign orders in September is 27, compared with 34.2 in August. Preliminary index of shipments is 101.5, compared with 95.7 in August. Ratio of unfilled orders to shipments rose to 9.8 to 1, compared with 8.7 to 1 in August.

Manpower Losses—The answer here is manpower. Men are being lost to other industries, and one company reported a case where a jig borer operator making $1.60 an hour was hired away at $2.75 an hour. This is rough competition for a non-mass production industry to meet.

But more important even than manpower and overloaded order books is the industry's position in regard to materials and certain components. A growing list, shafting, anti-friction bearings, castings, motors and gaskets, drew a warning from one industry source that "if the machine tool industry doesn't get priorities for materials within the next 120 days, a serious loss in production will result."

No Noise — Quieter machines will result from use of noise circuit decoupling techniques, according to Dr. Howard C. Hardy, supervisor of acoustics and vibration at Armour Research Foundation, Illinois Institute of Technology. By establishing noise circuits similar to electrical circuits, the acoustical engineer may trace the source of radiated sound and reduce the sound by "decoupling" the circuit.

New Plant — Independent Lock Co., Fitchburg, Mass., has obtained ground for construction of a $1 million steel and glass plant in which they will manufacture locks and hardware.

INTERNAL GRINDING WHEELS by CARBORUNDUM

TRADE MARK

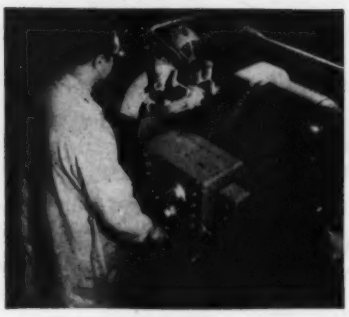
5 BIG ADVANTAGES

1. More pieces per wheel.
2. Faster, freer, cooler cutting.
3. Lighter dressing—longer diamond tool life.
4. Greater range of work from one grade.
5. Improved surface finishes and closer tolerances.

● OUTSTANDING ON DIFFICULT JOBS

Perhaps your internal grinding requires a particularly rugged, durable wheel...or maybe you have a delicate job where ordinary grinding pressures can't be tolerated. On a wide range of work, you can get higher production rates and finer finishes at lower cost with V1 Bond Internal Grinding Wheels by CARBORUNDUM.

V1 Bond Wheels are produced by a special new process that assures wheel uniformity, better grinding action and faster delivery. Machine manufacturers recommend them for high-production, precision work; and many large users depend upon them for consistent quality production. These wheels are also effective in tool-room grinding where cool cutting is essential. Write for complete facts. The Carborundum Company, Bonded Products Division, Niagara Falls, New York.



BRANCH OFFICES IN:

Atlanta	Los Angeles
Boston	Jersey City
Chicago	Philadelphia
Cincinnati	Pittsburgh
Cleveland	St. Louis
Detroit	San Francisco

Bonded Abrasives by

CARBORUNDUM

TRADE MARK

Making ALL abrasive products... to give you the proper ONE

"Carborundum" is a registered trademark which indicates manufacture by The Carborundum Company

STANDARD LEATHER CUP SEAL ASSEMBLY SHOWN IS INTERCHANGEABLE WITH STANDARD PISTON RING PISTON ASSEMBLY

MILLER
High Pressure
HYDRAULIC CYLINDERS
Meet J. I. C. HYDRAULIC STANDARDS

Years before the Joint Industry Conference (J. I. C.) Standards for specifying "quality" hydraulic equipment were adopted, the *standard* design and construction features of Miller High Pressure Hydraulic (2000-3500 psi) Cylinders already included ALL the specifications for cylinders, seals and pistons now called for by the "Standards". Hard chrome plated, scratch-resistant piston rods and dirt wipers have long been standard Miller cylinder features yet are required by the "Standards" only under severe conditions.

Solid steel heads, caps and mountings which eliminate costly, dangerous breakage even under the severest operating conditions represent an "extra-quality" standard Miller cylinder feature which actually exceeds the high quality set by the J. I. C. Standards.

The Miller "Patented" Hydraulic Piston Rod Seal which has no manual adjustment and is automatically self-adjusting and wear-compensating to give life-long leakproof service without ever requiring any manual adjustment whatsoever . . . far surpasses the requirement of J. I. C. Standard H6.2.5 which specifies "Stuffing boxes for automatic packing shall be so designed as to prevent adjustment beyond the functional limits of the packing"

Benefits to You

No Broken Castings

No Scratch-Damage to Piston Rods, Bushings and Seals

NO COSTLY "DOWNTIME"
NO REPAIRS
NO MAINTENANCE
NO POWER WASTAGE

Write for illustrated cylinder bulletins A-105 and H-104

COMPLETE MILLER CYLINDER LINE INCLUDES: AIR CYLINDERS, 1½" to 20" BORES, 200 PSI OPERATION; LOW PRESSURE HYDRAULIC CYLINDERS, 1½" TO 6" BORES FOR 500 PSI OPERATION, 8" TO 14" BORES FOR 250 PSI; HIGH PRESSURE HYDRAULIC CYLINDERS, 1½" TO 12" BORES, 2000-3000 PSI OPERATION. ALL MOUNTING STYLES AVAILABLE.

MILLER MOTOR COMPANY

4025-31 N. KEDZIE AVENUE, CHICAGO 18, ILLINOIS

AIR AND HYDRAULIC CYLINDERS · ACCUMULATORS · COUNTERBALANCE CYLINDERS · BOOSTERS · AIR HOISTS

CLEVELAND — PITTSBURGH — PHILADELPHIA — DETROIT — YOUNGSTOWN — BOSTON
HARTFORD — NEW YORK CITY — DAYTON — ST. PAUL — FORT WAYNE — INDIANAPOLIS
MILWAUKEE — NASHVILLE — SEATTLE — LOS ANGELES — SAN FRANCISCO — BALTIMORE
ST. LOUIS and OTHER AREAS.

and Service from coast to coast

FREE — USE POST CARD

PUBLICATIONS

New publications that describe money saving equipment and services are available free and without obligation. Copies can be obtained by filling in the attached card and mailing it.

New Starter Folder

Arrow-Hart Type "RA" magnetic starters, and Type "CRA" magnetic contactors, described in a new 8-p. booklet, are claimed to fill the need of original equipment manufacturers and design engineers for reduced weight and size without sacrifice of performance. As shown in the bulletin, they contain a patented right-angle balanced mechanism, "blow-out" contact design, straight-thru wiring, high arc resistant and suppression chambers, and other features for performance and safety. The folder gives ratings, dimensions, catalog numbers and other engineering and design data. *Arrow-Hart & Hegeman Electric Co.*

For free copy insert No. 1 on postcard.

Refractory Coating

Cera-kote, a new ceramic method for protecting refractories against slag penetration, abrasive wear, flame erosion, corrosive gases, molten metal and thermal shock, is described in a new 4-p. folder. Use of this protective coating in new construction, as a maintenance coating, and for old, damaged, refractory walls, is discussed; a check list for applications is included. *Cera-kote, Inc.*

For free copy insert No. 2 on postcard.

Crane Cab Conditioners

Dravo units for reducing fatigue or injury to crane operators working in hot or contaminated atmospheres, are described in a new series of bulletins and data sheets. Various models include units for cab cooling, fume removal, constant ventilation, winter heating and dust filtering. A complete discussion of crane cab air conditioning is presented and specifications of the equipment are listed. *Dravo Corp.*

For free copy insert No. 3 on postcard.

New Carbide Tool Line

Production of a new series of precision machine ground, solid tungsten carbide rotary files, reamers, end mills, internal grinding tools, boring bits and knurls, rounding out the Jarvis line of power tools, is announced in a new 12-p. booklet. The entire assortment of sizes and types is described and illustrated. *Charles L. Jarvis Co.*

For free copy insert No. 4 on postcard.

Turbo-Blowers

A number of typical installations of Ingersoll-Rand turbo-blowers are shown in a new 32-p. booklet illustrating that whatever the size or application, there is an I-R centrifugal or reciprocating compressor for the job. Units shown for compressing air or gas range in capacities up to 130,000 cfm and higher, at discharge pressures up to 100 psi and above. *Ingersoll-Rand Co.*

For free copy insert No. 5 on postcard.

Brass and Bronze Items

The new edition of the Jaques catalog presents latest price lists on brass and bronze items carried in stock. Several sections of tables and technical information have been added to the 30-p. booklet. Illustrations have also been included of many special products to show samples of past production. Specifications and prices for a variety of hexagon, knurled, wing and cap nuts, bolts, screws, cotter pins and washers are listed. *Jaques Co.*

For free copy insert No. 6 on postcard.

Portable Conveyer

A new 8-p. bulletin describes the complete range of the Barber-Greene Model 374 heavy duty portable conveyer. Fields of use and products handled are listed, and a series of sketches show applications in industry and construction. Accessories such as feeders, screens and hoppers are pictured, with suggested usage for each. Construction features are illustrated and their operational advantages described. *Barber-Greene Co.*

For free copy insert No. 7 on postcard.

New Air Foam Catalog

An entirely new 24-p. brochure on air foam or mechanical foam for firefighting will prove of interest to companies having oil storage tanks and other large flammable liquid fire hazards. It describes air foam, methods of application, high and low expansion types of foam compound, specifications and operating characteristics for five sizes of portable playpipes, mobile and stationary foam proportioning

Turn to Page 118D

NISILOY

A POWERFUL, POSITIVE INOCULANT

Cuts Final Cost of Gray Iron Castings

by improving

MACHINABILITY, GRAIN STRUCTURE, UNIFORMITY

BENEFITS TO FOUNDRYMEN

Reduces Rejects—Used for structure control of cast iron, Nisiloy helps your foundry meet daily schedules for uniform lots of machinable gray iron castings.

Promotes Sound Castings — Diffusing rapidly throughout the melt, Nisiloy promotes a dense, close-grained product.

Curbs Breakage—Even where section thickness varies sharply, Nisiloy serves to eliminate chilled edges and surfaces, thus affording a tougher cast iron that resists breakage in shop handling.

No Scrap Problem—Containing only elements that dissolve freely in iron, Nisiloy permits remelting sprues and gates in any successive melt without risk of adding chill-forming elements.

Fewer Base Mixtures—Often a single base mixture may be used in the cupola to which Nisiloy is added in the ladle, with the consequent flexibility of pouring off thin or thick sectioned castings as desired.

For full information about this nickel-silicon alloy, one of the most useful products ever offered for improving machinability and structure of gray iron castings, fill in and mail the coupon below.

BENEFITS TO CASTING USERS

Excellent Machining Qualities—The dense, gray, machinable structure secured with Nisiloy reduces machining time, tool wear, rejects and costs.

Increased Wear-Resistance—The formation and distribution of finely divided random flake graphite accomplished with Nisiloy assures highly improved resistance to wear.

Improved Toughness—Nisiloy acts to eliminate hard, chilled areas . . . thus, the casting is thoroughly machinable in thin and thick sections alike and less sensitive to breakage in machining operations and general service.

Dependable Pressure-Tightness—The sound, homogeneous structure attained by inoculating with Nisiloy results in dense cast iron that provides substantially improved pressure-tightness.

EMBLEM OF INCO SERVICE
TRADE MARK

The International Nickel Company, Inc.
Dept. IA, 67 Wall Street, New York 5, N. Y.

Please send me your booklet entitled:
"NISILOY" for GRAY IRON CASTINGS

Name.....*Title*.....

Company.....

Address.....

City.....*State*.....

THE INTERNATIONAL NICKEL COMPANY, INC. 67 WALL STREET NEW YORK 5, N.Y.

let 1 in. from the bottom of the beaker is used to remove the wash water from the beaker. *Claud S. Gordon Co.*

For more data insert No. 23 on postcard, p. 35.

Recording Oscillograph

Low cost, high-volume production; record speeds of ¼ to 100 ips.

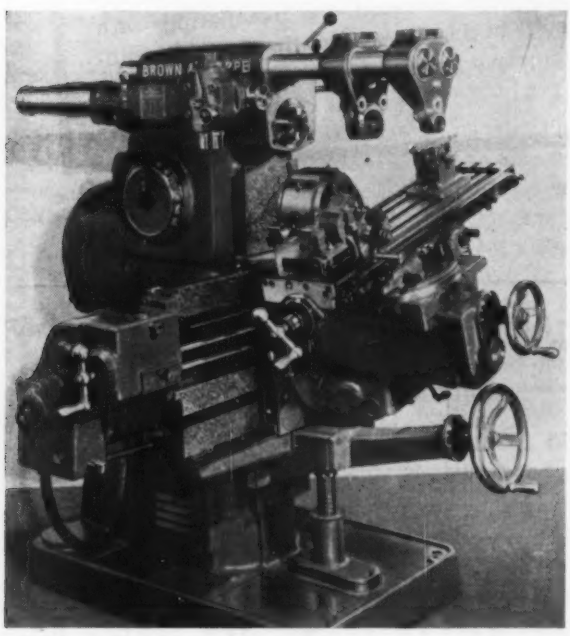
Major components of the new Type 5-116 recording oscillograph are mounted in a web-based casting; a front casting houses the operational controls and the critical components of the permanently fixed optical system. Combination feed and takeup magazine has a capacity of 125 ft of 5-in. wide recording material. A new record transport system incorporates neither sprocket teeth nor a pressure roller to provide positive record engagement. The oscillograph uses CEC Series 7-200 galvanometers in a wide variety of sensitivities and frequency ranges, providing the instrument with extreme flexibility in its applications. High

record speeds of the instrument make it possible to record transient phenomena in minute detail. The 5-116 is available in 9 or 14-trace

Milling Machine

Provides simple and compound angular settings in any plane.

The new Omniversal milling machine, with fundamental movements and adjustments common to the universal milling machine, has, in addition, an angular adjustment of the table in a vertical plane at right-angles to the spindle and a horizontal feed of the entire knee assembly in the same plane. The gear-driven Omniversal milling head is adjustable parallel to the overarms, is arranged for universal angular adjustment, and has a 2-in. hand feed of the spindle. Work may be milled in a number of planes, or drilled, bored or reamed at many different angles without the use of special fixtures or attachments, and without relocating the work in the holding device. Eighteen spindle speeds, 40 to 1530 rpm for the machine and 76 to 2900 rpm for the Omniversal head, with infinite number of feed changes from ½ to 15 ipm, meet a wide variety of milling requirements. *Brown & Sharpe Mfg. Co.*



For more data insert No. 26 on postcard, p. 35.

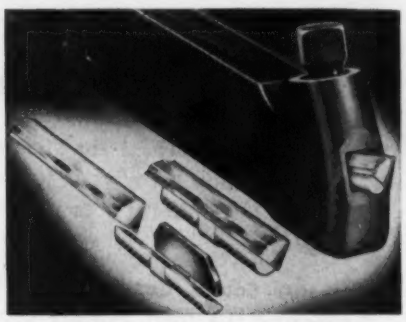
block capacity for either 24-28 v dc or 115 v, 60 cycle ac drive. *Consolidated Engineering Corp.*

For more data insert No. 24 on postcard, p. 35.

Tool Bits

Have two cutting sides, with chip-breakers the full length of the edges.

Two cutting sides, with chip-breakers the full length of the edges of new tool bits are claimed to give any desired side clearance angle and any desired side rake angle. All chatter and vibration is eliminated by a self-seating and locking feature that firmly and solidly locks the cutting tool to all four sides of the square or rectangular channel in Armstrong, Williams, or other standard tool



holders and boring bars. Any required side clearance is established by the angle of the wedge shaped member on the cutting side of the tool bit. The required side rake angle, positive or negative, is established by the included angle of the tool bit and chip-breaker. Tool bits are high speed tool steel and cast alloy materials in sizes from ⅛ to 1⅛ in. *Speed Bits.*

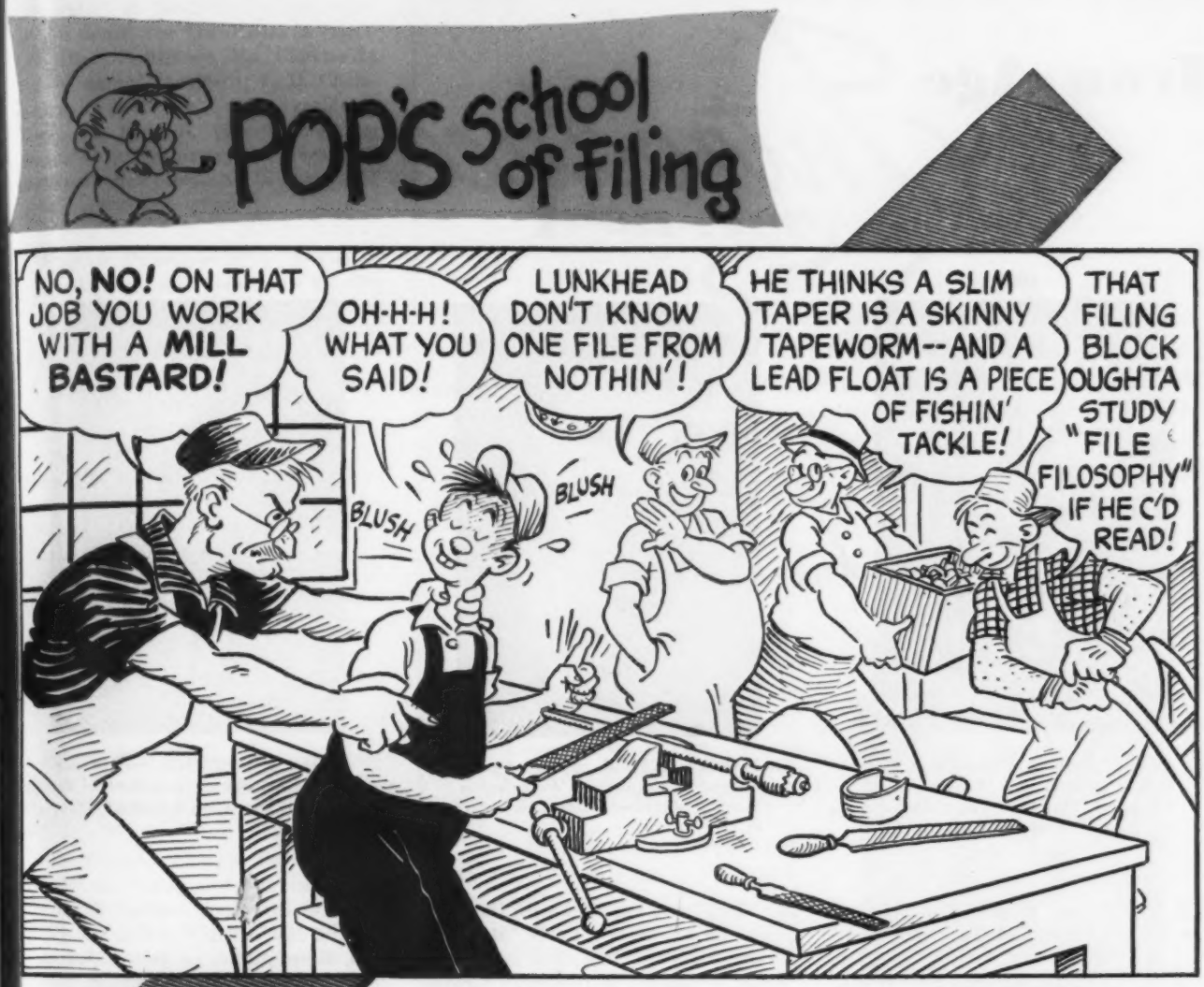
For more data insert No. 25 on postcard, p. 35.

Special Drill Press

Drills and chamfers 36 holes in 36-in. steel ring 3¼ in. thick.

The special horizontal and vertical drill press has a capacity of 1.6 pieces per hr at 80 pct efficiency, and is equipped with control mechanism that provides for alternating the depths of the 36 holes drilled and chamfered around the circumference of the workpiece. The vertical head also drills three groups of holes in the top of the part. This head is cycled automatically when the workpiece is located in the proper radial position. Indexing is automatic by means of a 34-in. diam table with

Turn to Page 96



Discovering a coarse double-cut Flat file being used on a job that properly calls for the smoothing action of a single-cut Mill file is probably one of the reasons shop foremen of Pop's exacting temperament get gray.

Because there are thousands of filing jobs—embodying different materials, different circumstances, and calling for different results—Nicholson makes thousands of kinds, cuts and sizes of files... to make available to you *A file for every purpose*, the best results on every job, the biggest saving in time, and the lowest filing cost.

Every production-line filing operation should have the studied selection of *The right file for the job.* In co-operation with trained Nicholson factory representatives, your industrial distributor can help your production and purchasing departments to a really worthwhile degree.

Technical information is also obtainable from us direct. And for general information on kinds, use and care of files—

SEND FOR "FILE FILOSOPHY"

—Nicholson's interesting and informative illustrated 48-page book (which has appeared in 16 editions and many reprints). Send for as many copies as you need for keymen use. It's FREE.

NICHOLSON U.S.A. **NICHOLSON FILE CO. • 31 ACORN STREET • PROVIDENCE 1, RHODE ISLAND**
(In Canada, Port Hope, Ont.)

NICHOLSON . . . A FILE FOR EVERY PURPOSE

let 1 in. from the bottom of the beaker is used to remove the wash water from the beaker. *Claud S. Gordon Co.*

For more data insert No. 23 on postcard, p. 35.

Recording Oscillograph

Low cost, high-volume production; record speeds of ¼ to 100 ips.

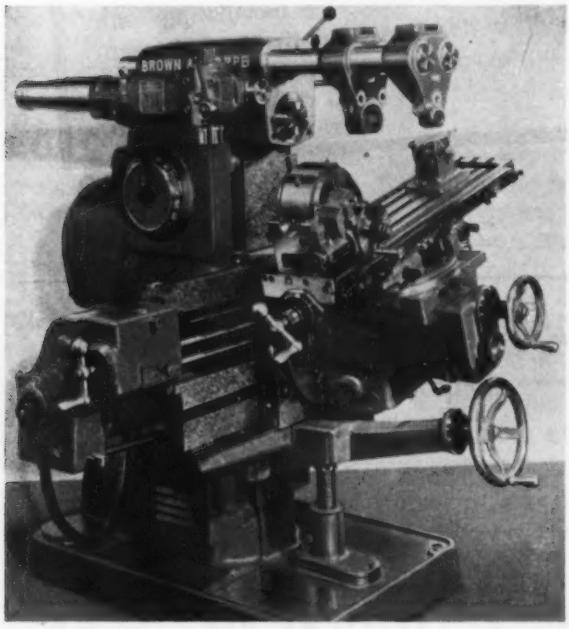
Major components of the new Type 5-116 recording oscillograph are mounted in a web-based casting; a front casting houses the operational controls and the critical components of the permanently fixed optical system. Combination feed and takeup magazine has a capacity of 125 ft of 5-in. wide recording material. A new record transport system incorporates neither sprocket teeth nor a pressure roller to provide positive record engagement. The oscillograph uses CEC Series 7-200 galvanometers in a wide variety of sensitivities and frequency ranges, providing the instrument with extreme flexibility in its applications. High

record speeds of the instrument make it possible to record transient phenomena in minute detail. The 5-116 is available in 9 or 14-trace

Milling Machine

Provides simple and compound angular settings in any plane.

The new Omniversal milling machine, with fundamental movements and adjustments common to the universal milling machine, has, in addition, an angular adjustment of the table in a vertical plane at right-angles to the spindle and a horizontal feed of the entire knee assembly in the same plane. The gear-driven Omniversal milling head is adjustable parallel to the overarms, is arranged for universal angular adjustment, and has a 2-in. hand feed of the spindle. Work may be milled in a number of planes, or drilled, bored or reamed at many different angles without the use of special fixtures or attachments, and without relocating the work in the holding device. Eighteen spindle speeds, 40 to 1530 rpm for the machine and 76 to 2900 rpm for the Omniversal head, with infinite number of feed changes from ½ to 15 ipm, meet a wide variety of milling requirements. *Brown & Sharpe Mfg. Co.*



For more data insert No. 26 on postcard, p. 35.

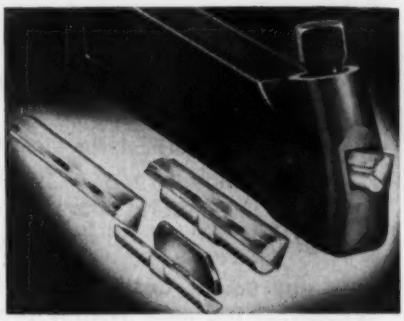
block capacity for either 24-28 v dc or 115 v, 60 cycle ac drive. *Consolidated Engineering Corp.*

For more data insert No. 24 on postcard, p. 35.

Tool Bits

Have two cutting sides, with chip-breakers the full length of the edges.

Two cutting sides, with chip-breakers the full length of the edges of new tool bits are claimed to give any desired side clearance angle and any desired side rake angle. All chatter and vibration is eliminated by a self-seating and locking feature that firmly and solidly locks the cutting tool to all four sides of the square or rectangular channel in Armstrong, Williams, or other standard tool



holders and boring bars. Any required side clearance is established by the angle of the wedge shaped member on the cutting side of the tool bit. The required side rake angle, positive or negative, is established by the included angle of the tool bit and chip-breaker. Tool bits are high speed tool steel and cast alloy materials in sizes from ⅛ to 1⅛ in. *Speed Bits.*

For more data insert No. 25 on postcard, p. 35.

Special Drill Press

Drills and chamfers 36 holes in 36-in. steel ring 3¼ in. thick.

The special horizontal and vertical drill press has a capacity of 1.6 pieces per hr at 80 pct efficiency, and is equipped with control mechanism that provides for alternating the depths of the 36 holes drilled and chamfered around the circumference of the workpiece. The vertical head also drills three groups of holes in the top of the part. This head is cycled automatically when the workpiece is located in the proper radial position. Indexing is automatic by means of a 34-in. diam table with

Turn to Page 96

Iron Age *Introduces*

C. E. CHRISTMAN, founder of the Federal Enameling & Stamping Co., Pittsburgh, has become chairman of the board of directors.

HAROLD K. BECK, appointed commercial vice-president, Worthington Pump & Machinery Corp., Harrison, N. J.

JOHN J. HARDING, former vice-president, elected president of the Federal Enameling & Stamping Co., Pittsburgh.

S. D. Gibson, elected president of the CRESCENT TRUCK CO., Lebanon, Pa., to succeed Claude D. Eiler who died recently. **James G. Krause**, elected vice-president and general manager and **Charles W. Mellinger**, elected secretary and assistant treasurer.

Mead L. Bricker, former vice-president and member of the administration committee of the Ford Motor Co., elected to the Board of Directors of the FEDERAL MACHINE & WELDER CO., Warren, Ohio.

William A. Blume, appointed administrative vice-president of the ASBESTOS MFG. CO., Huntington, Ind.

B. W. Westcott, elected vice-president of the HOWELL ELECTRIC MOTORS CO., Howell, Mich., and **James F. Murphy**, appointed general sales manager.

P. M. Burgess, formerly general sales manager, named vice-president in charge of sales for the FEDERAL ENAMELING & STAMPING CO., Pittsburgh. **W. T. Christman**, formerly general superintendent, made vice-president in charge of operations. Mr. Christman has been with the company for 37 years. **C. W. McIndoe**, formerly assistat treasurer and comptroller, promoted to treasurer. **Grover L. Smith**, who has been with the company for 36 years, named secretary, and **Roy E. Shupp**, appointed controller.

L. R. Ludwig, appointed assistant to the vice-president, WESTINGHOUSE ELECTRIC CORP., Pittsburgh. Mr. Ludwig was formerly manager of the Motor and Control Div. in Buffalo.

Rear Adm. Paul L. Mather, U. S. N. (retired), formerly head of the War Assets Administration, is now associated with DE LAVAL SEPARATOR CO., New York, as manager of the precision equipment and special assistant to the president.

P. S. Hopkins will resign as vice-president of LINK AVIATION, INC., Binghamton, N. Y., early next year. Mr. Hopkins will then become a member of the firm's board of directors.

H. C. Cogan, elected assistant treasurer of the PARKER APPLIANCE CO., Cleveland.

T. A. Crawford, elected vice-president of the TIMKIN-DETROIT AXLE CO. He continues as general manager of its Timken Silent Automatic Div.

Elton E. Staples, manager of the Cleveland District office of HEVI DUTY ELECTRIC CO., Milwaukee, was elected a vice-president. He will continue to head the Cleveland office.

James C. Skinner, has become president of the newly formed firm of SKINNER, HARLAN & IRELAND, INC., Indianapolis. **Avery S. Harlan**, named vice-president, and **James R. Ireland**, secretary. All three have been associated for years with a prominent designer and manufacturer of permanent magnets and laminated cores.

R. D. Van Norstrand, designing engineer in the Schenectady Industrial Heating Engineering Div. of the GENERAL ELECTRIC CO., is retiring after 37 years with the company. **George Carlson** appointed manager, Kensington, Pa., works.

C. E. Willis, named chief engineer, LEAR, INC., Grand Rapids, to succeed **R. A. Rugge** who recently resigned.

Marshall E. Reid, elected chairman of the board for the REID AVERY CO., INC., Baltimore, Md. **Charles L. Virden,** named president; **L. H. Christensen,** executive vice-president; **James M. Sawhill,** vice-president in charge of engineering; and **Gerard E. Claussen,** vice-president in charge of research and development.

Osborne Bezanson will resign as vice-president and member of the executive committee of Monsanto Chemical Co., St. Louis, to become president and a member of the board of directors of the CHEMISTRAND CORP., St. Louis. Mr. Bezanson is succeeding **Dr. Carroll A. Hochwalt,** who will remain as a member of the board of directors. **Harry L. Dalton,** vice-president of American Viscose Corp., has also become a member of the board.

Walter J. Barz, retiring as treasurer of DANLY MACHINE SPECIALTIES, INC., Chicago. **Paul L. Lawless,** former comptroller, will succeed him.

Francis X. Ferguson, appointed assistant eastern district manager for the A. SHAW CO., Pittsburgh.

Dr. Arthur Eldridge Focke, named head of the Chemistry and Metallurgy Dept., NEPA Div. of the FAIRCHILD ENGINE AND AIRPLANE CORP., Oak Ridge, Tenn. Dr. Focke was previously associated with the Diamond Chain Co., Indianapolis, as chief metallurgist.

John Williamson, named materials control supervisor for HUNT-SPILLER MFG. CORP., Boston, succeeding **John E. Henry,** who resigned.

LOUIS K. WHITCOMB, appointed manager of product development for Sharon Steel Corp., Sharon, Pa.

Iron Age Salutes

CHARLES MORRIS JOHNSON

CHARLES MORRIS JOHNSON ranks among the great chemists of the steel industry and is considered one of its great teachers—a scientist who not only knows his subject well, but also one who can write about it so that others can learn.

Mr. Johnson, who retired last July 1 after 60 years in the industry, 48 of them with Crucible Steel Co. of America as chief chemist and, for a time, director of research, left a legacy of papers and patents that constitute a major contribution to steelmaking and analysis. Many of his procedures are standard practice today.

In 1948 Mr. Johnson received the Distinguished Service Award of the American Society for Metals, "for the early perfection of analytical methods for chemical control of alloys in steel."

His most important research was in the field of special and alloy steels. As early as 1922, he wrote of "Alloy Steels of High Elastic Limit, Their Heat Treatment and Microstructure," and in 1924, of "Corrosion Data on Various Alloys and Alloy Steels."

Mr Johnson in 1905 was the author of papers such as, "Rapid Determination of Nickel in the Presence of Iron, Chromium and Manganese." In 1908 he published the first edition of "Chemical Analysis of Special Steels, Ferroalloys and Graphite," a work that became a standard reference of steel analysts. Many of his papers appeared in THE IRON AGE, as early as 1917.

In the period, 1920-1922, he was granted patents covering vault plate steel, steel alloys, high speed steels with molybdenum and high vanadium, and certain high nickel-silicon-chromium steels for heat and corrosion resistance—the latter known today as "Rezistal" steels.

In 1918, Mr. Johnson was elected a Fellow of the American Assn. for the Advancement of Science, and also is a member of numerous other professional societies.

To prove the diversity of his thinking, Mr. Johnson has developed a solution which he says is quite effective as a cure for poison ivy rash and blisters, hives, and tomato rash.

W. E. PHILLIPS, elected a director of the Pittsburgh Plate Glass Co., Pittsburgh.

ASHTON H. BEAUMONT, joined the MacCallum Steel Corp., Compton, Calif., as sales manager.

JOHN E. STEVENS, JR., named assistant to the president of Edward Valves, Inc., East Chicago, Ind.

Paul H. Devaney, appointed general superintendent, Aliquippa Works, for JONES & LAUGHLIN STEEL CORP., Pittsburgh. Mr. Devaney is succeeding **Howard F. Martin,** who has been transferred to the office of the vice-president of operations as operations consultant. **Alonzo C. Keller,** appointed assistant general superintendent to succeed Mr. Devaney.

J. F. Beckman, promoted to district manager, New Orleans district, by the SIGNODE STEEL STRAPPING CO., Chicago. **John Hoffman,** promoted to assistant manager, Boston district.

Howard L. Spindler, formerly manager of advertising and sales promotion for the AMERICAN-STANDARD CORP., Pittsburgh, named director of public relations. **Robert W. Lear** will succeed Mr. Spindler.

Alwin Tonkonogy, appointed engineering consultant and sales representative, for MANNING & LEWIS ENGINEERING CO., Newark, N. J. Mr. Tonkonogy was formerly associated with Process Plants Engineering Co., Newark, N. J.

H. E. Montgomery, field representative for mechanical goods sales, Los Angeles, for the GOODYEAR TIRE & RUBBER CO., has retired after 30 years with the company.

John G. McLain, named to Roll Sales Engineering staff, CONTINENTAL FOUNDRY & MACHINE CO., East Chicago, Ind.

Maurice R. Graney, appointed superintendent of training, Indiana Harbor Works, for the INLAND STEEL CO., Chicago.

Carlton R. Becker, appointed Western factory representative, with headquarters in Pasadena, Calif., for the MORSE CHAIN CO., Division of Borg-Warner Corp., Detroit.

John B. Hall, appointed railroad representative in Chicago for the HYSTER CO., Portland, Ore.

OBITUARIES

W. B. Horton, 53, welding engineer, Lincoln Electric Co., Chicago, died recently.

John S. Scott, 63, office manager, Birmingham Slag Co., Birmingham, passed away recently.

Edward W. Kavanagh, manager, Sales & Service, Railway Div., Southern Region, Manganese Steel Forge Co., Philadelphia, passed away recently.

Chester Andrew Orr, 67, chairman of the board, Union Metal Mfg. Co., Canton, Ohio, died Oct. 10.

George Sessions Case, 67, chairman of the executive committee, Lamson & Sessions Co., Cleveland, died recently.

S. J. Ryan, 52, assistant manager, Tin Plate Sales, Wheeling Steel Corp., Wheeling, West Virginia, passed away Oct. 10.

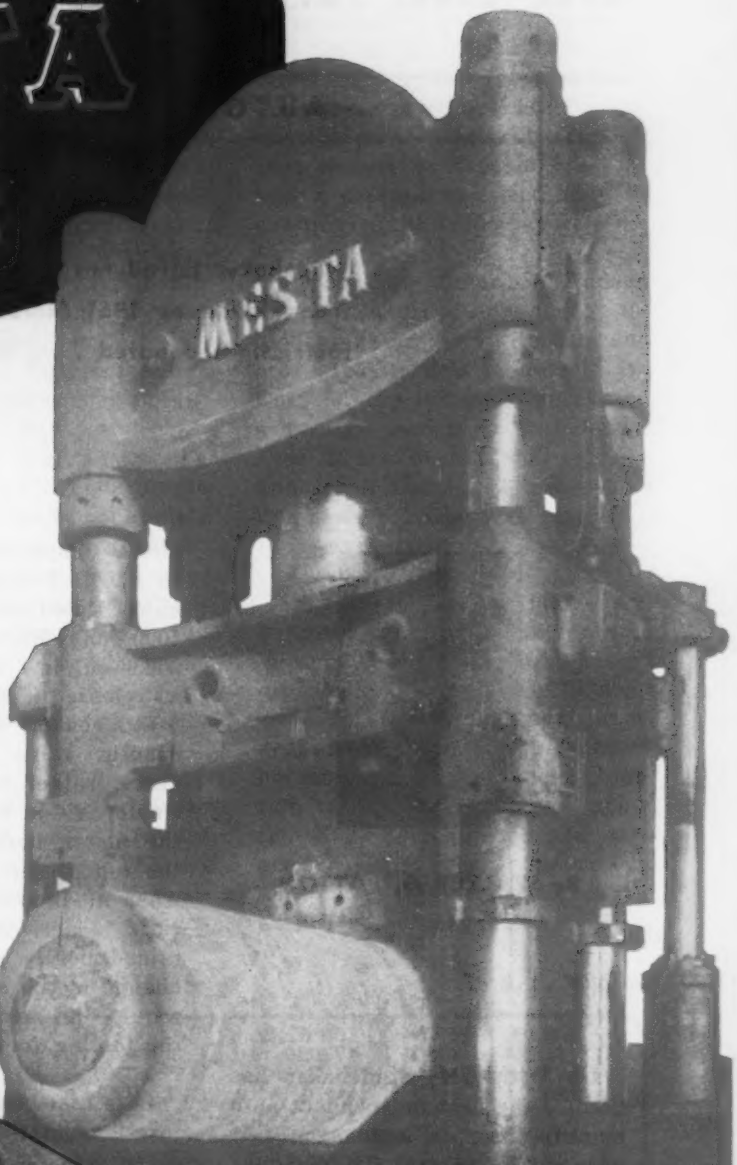
David Roe Zenner, 58, president of the McBee Co., Athens, Ohio, died Oct. 17.

James H. Heroy, director of the Pittsburgh Plate Glass Co., Pittsburgh, died recently.

T. M. EVANS, elected president of Connors Steel Co., Inc., Birmingham.

C. R. DOBSON, elected vice-president and chairman of the executive committee of Connors Steel Co., Inc., Birmingham.

MESTA Forgings



Mesta Forge Shops are equipped to produce, from raw material to finished product, carbon and alloy steel forgings in all sizes required by industry, including crankshafts, marine parts, rotor shafts, rolls, pinions, pressure vessels, pump blocks, table rollers, coupling halves, spindles, gears, and many others.

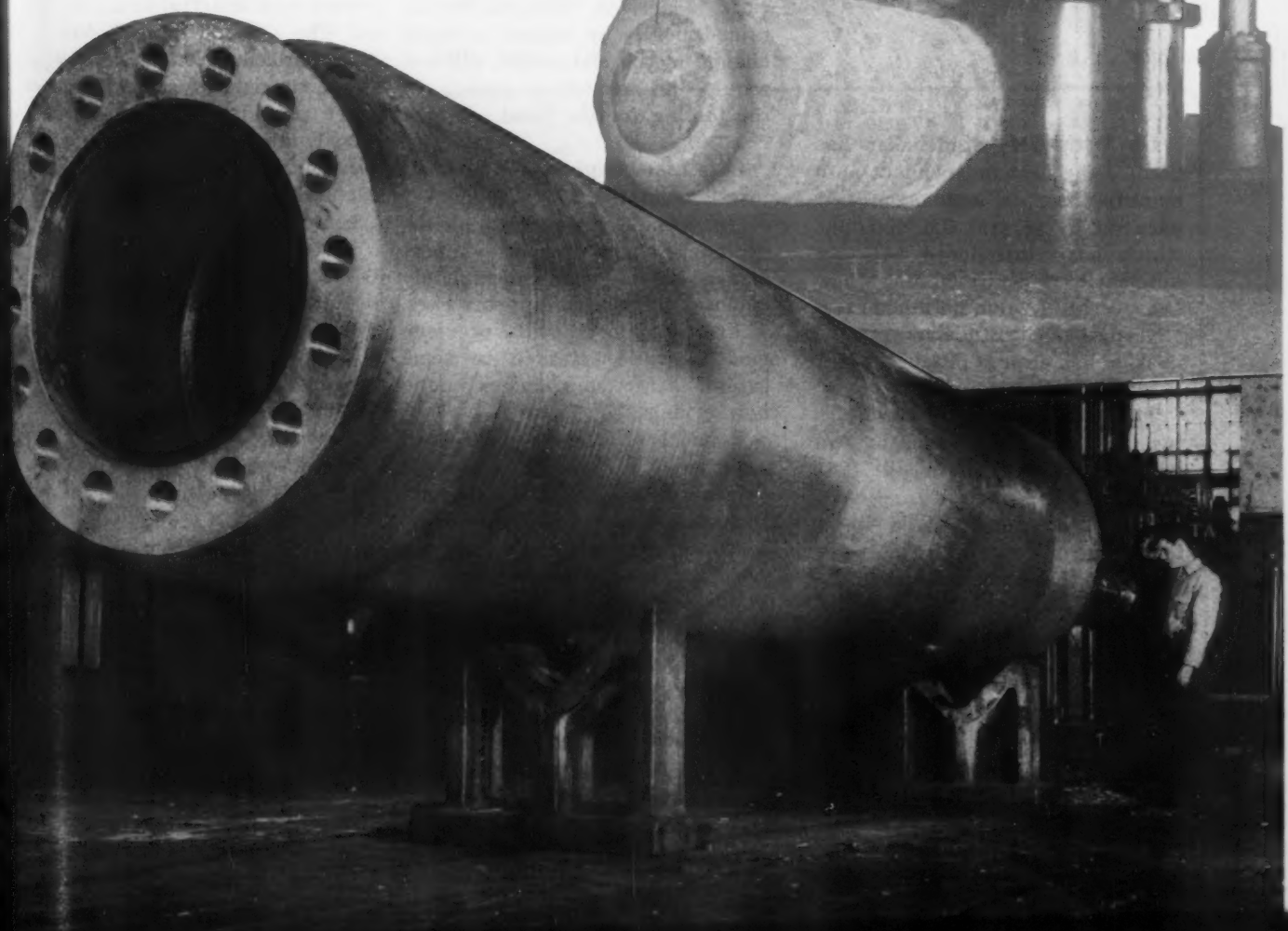
The illustration shows a one-piece forged steel high pressure accumulator bottle for a 6,000-ton hydraulic forging press. It was produced complete in the Mesta Plant.

Write for descriptive forging literature.

DESIGNERS AND BUILDERS OF
COMPLETE STEEL PLANTS

MESTA MACHINE CO.

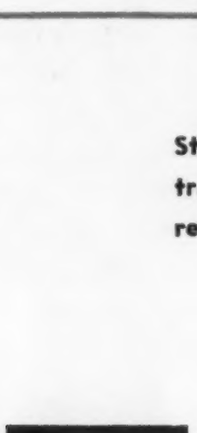
PITTSBURGH, PENNSYLVANIA



On the ASSEMBLY LINE

AUTOMOTIVE NEWS AND OPINIONS

Studebaker introduces new V-8 engine . . . Merc-O-Matic transmission on 1951 Mercury line . . . Effect of credit restrictions debated . . . Used cars may be hit hardest.



By WALTER G. PATTON

Up With GM—Studebaker has become the first independent auto manufacturer to match the fast pace set by several GM divisions which have introduced both an automatic transmission and a new V-8 overhead valve high compression engine. The Studebaker transmission has been in production for several months.

The new Studebaker engine is just reaching volume output and will be available shortly in 1951 Studebaker passenger cars. Weight reductions of 205 lb in the Commander and 55 lb in the Champion have been achieved.

High Compression Ratio—Both the engine itself and the engine tooling and plant are entirely new. In general, the design follows the Cadillac and Olds engines. All members are stiffer and bearing sizes have been increased to permit a compression ratio as high as 12.5 to 1 when fuels are available. Rated horsepower is 120 at 4000 rpm. Piston displacement is 232.6 cu. in. Compression ratio as released is 7 to 1.

Studebaker will not use hydraulic valve lifters. Timing gears, rather than a chain, are employed. In the present engine, the piston does not quite reach the top of the cylinder. Hence, when an increase in compression ratio is desired, this can be obtained merely by making a slight change in the piston and will not require an immediate change in the tooling for the head.

Less Like Airplane—Styling alterations in the 1951 Studebaker center around the radiator grille, "spinner" and bumper support splash shield which completely encloses the bumper support bars. The airplane motif of the previous models, while retained to some extent, is less conspicuous in the new models.

Vertical tail lamps have been redesigned to provide increased lighting, rearward and laterally. One-piece windshields are now standard on all Studebaker models. One-piece rear windows are standard on all but two models.

Mechanical and other improvements include wider rear springs, centerpoint steering, direct acting shocks (standard on all models), modified propeller shaft and modification of box-section double-flanged frames. There are no significant changes in the engine used on the Champion model.

Merc-O-Matic Debut — The new Ford-Borg-Warner automatic torque converter type transmission was formally introduced last week for the 1951 model Mercury cars. Combining a hydraulic torque converter and planetary gearing, the new transmission is unique both as to design and construction.

The Merc-O-Matic has only three basic elements. The gear box consists of a compound gear set, providing a low ratio of 2.44 to 1, intermediate ratio of 1.48 to 1, and direct drive. There are two clutches and two bands which control the ratio changes.

Shifts to Direct Drive—For ordinary driving, the transmission moves automatically into direct drive. All starts are made in intermediate gear. The shift to direct drive occurs between 17 to 64 mph, varying with throttle pressure. Low gear is available for heavy pulling and downhill braking.

The transmission uses 24 aluminum die castings. Three major die castings weigh approximately 15 lb. A die cast impeller cover is employed and stamped steel blades are recessed into it. There is no welding or copper brazing since the blades are secured by tabs which are rolled in assembly. The stator is die cast construction.

The turbine element is built of sheet metal.

Air Cooling—The Merc-O-Matic transmission is cooled by circulating air through the housing which encloses the torque converter. Fins on the outer surface of the aluminum converter shell induce air circulation and provide cooling without placing an additional load on the engine cooling system.

Styling changes in the 1951 Mercury include a new grille with wider bars and new wrap-around bumpers. Some changes have been made in the rear fenders and quarter panels. The rear window is 29 pct larger and horsepower of the engine has been raised from 110 to 112. Anti-stall device operated hydraulically provides improved operation with an automatic transmission.

Repeats Rosy Estimate—C. E. Wilson, president of General Motors Corp., is sticking to his forecast of 8 million vehicle output this year. Mr. Wilson repeated an earlier prediction at a dinner given by the Automobile Oldtimers in New York last week.

The GM top executive who has earned an amazing record for accuracy in the past is apparently confident that neither the tight nickel situation or increased pressure on available steel supplies will haul the auto industry down short of its 8 million car goal.

Auto Dealers Howl—It is still too early to tell accurately what will be the effect of the unexpected stiffening of consumer credit by the Federal Reserve Board. Many automobile dealers are screaming from the housetops. This is as expected. An automobile dealer by nature objects to restrictions from any source, whether imposed by government or the automobile manufacturer.

There seems to be fairly general agreement that the new restrictions will affect automobile sales adversely but probably not as much as the prophets of doom are predicting. Particularly in the middle-priced and high-priced cars, a surprisingly large number of people are still buying cars for cash.

Hardest Hit—The used car market may be hardest hit since this type of buyer usually operates on a budget which will be thrown out of step by the new regulation. Budget buyers also predominate in the low-priced field. With payments ranging up to $90 per month on a Chevrolet there may be some reaction in this market.

However, past experience has indicated that tighter credit regulations have not had too depressing an effect on automobile buying. And, with more people working today and receiving higher pay than at any time in the country's history, many automobile executives are confident that either the buyers will find the necessary cash or else some loopholes in the new regulations will allow automobile buyers to get new cars.

Cheaper Used Cars — Meanwhile, prices of used cars are definitely on the skids. The decline has continued now for almost 2 months. The price index compiled by Automotive News dropped $6.00 last week. Some of the decline is undoubtedly accounted for by gas escaping from the Korean price bubble. The decline is partly seasonal. The recent change in Reg. W has also had a depressing effect on used car prices, the trade reports.

Production Pictures — Hudson has used a unique method of introducing its new Hornet and other 1951 models to Detroit. On Oct. 20, the company purchased a 14-page section in the *Detroit Free Press* to tell the public—and let it see in pictures—how the newest Hudson is manufactured and assembled.

Objects to Price Hikes — Apparently anticipating an increase in automobile prices which will probably follow any boost in steel costs, Walter P. Reuther, president of the UAW-CIO has repeated his more or less permanent objection to high auto prices, saying that price increases on new cars are unjustified because assemblers and parts suppliers can readily absorb recent pay hikes.

THE BULL OF THE WOODS — By J. R. Williams

Multipress® Users Tell of Remarkable Production Gains

Swaging— "Output boosted to 7,000 parts per day, on swaging tiny precision watch parts."

Staking— "Production increased 230%— highest accuracy maintained."

Assembling— "100% increase in production— operating safety greatly increased."

Riveting— "Production rate doubled— more accurate finished assemblies."

Broaching— "Production jumped from 500 parts per hour to 1,500."

Embossing— "Multipress ends need for soaking leather before embossing—cuts costs."

MULTIPRESS is a standard oil-hydraulic, production tool *engineered* for quick, easy, accurate control of widely adjustable, oil-smooth ram action.

Highly compact, fully enclosed design saves space and makes the machine easy to equip with automatic loading, feeding and ejecting devices for all types of specialized operations.

Multipress is available with either manual or automatic ram controls, with a wide range of ram actions and adjustments that permit operating sequences for almost any production need.

You can preset the pressing speed and pressure of the Multipress ram to the precise needs of each operation. And with ram speeds up to 530 inches per minute. Multipress is *fast*.

Built in eight bench and floor-type frame sizes, Multipress now offers capacities from one to 50-tons. Standard Multipress accessories and attachments include six- and 12-station indexing tables, dial feed tables, pelleting equipment, strip feed attachments, straightening fixtures, and many others. The cost-cutting efficiency of Multipress has been proved by more than six thousand units now in use! Write today for complete information!

The DENISON Engineering Co.
1158 Dublin Road
Columbus 16, Ohio

DENISON HydrOILics

New 50-TON MULTIPRESS Brings HydrOILic Efficiency to Greater Range of Jobs

Now—with capacities to *fifty* tons—Multipress brings the advantages of safer, smoother oil-hydraulic speed and precision to a new, wider range of production jobs.

The new, bigger Multipress has the same accurate, feather-touch control and easy, wide adjustability—the same work-speeding, cost-cutting efficiency offered before in models ranging to 35-ton capacity. It is also available with six- and twelve-station Index Tables and other standard Multipress accessories, for highest production efficiency. Choice of manual or automatic controls for almost any type of ram action or operating sequence. Write for details on the big new 50-ton Multipress today!

WEST COAST PROGRESS REPORT

Digest of Far West Industrial Activity—By R. T. REINHARDT

New Geneva Capacity?—After his talk on steel before the California Manufacturers Assn. recently, Mr. Benjamin F. Fairless replied in answer to questions that the possibility of increased ingot production at Geneva "is being considered." Such a development would be logical to back up the facilities recently announced to produce 100,000 tons of hot rolled sheets per year at Geneva.

Talk in the Pacific Northwest about the possibility of U. S. Steel putting furnaces and rolling facilities in that area were apparently spiked by Mr. Fairless when he replied to a question on that subject: "We are studying the possibilities of a fabricating plant in the Pacific Northwest."

Less Steel for Autos—James K. Knudson, defense transportation administrator, told the California Manufacturers Assn. he was convinced steel rationing for civilian automobiles was certain to come. Such a program would require approval of W. Stuart Symington, chairman, NSRB.

Mr. Knudson indicated his principal concern is the shortage of railroad cars and that construction of 100,000 box cars is needed immediately and said this was one reason for steel rationing.

Western Producers Hard At It—Western steel furnaces continue to produce well above rated capacity and equal or exceed national production rates. From Seattle to Los Angeles and as far east as Denver practically every available open-hearth and electric furnace is in operation.

So far tightening scrap has not affected production. Last week Bethlehem Pacific Coast Steel Corp. at Seattle received its first scrap from Germany, a shipment of 30,000 tons, with more expected later.

Less Government Scrap—Offerings of scrap from government agencies are less frequent. One of the most recent is that of Edwards Air Force Base, California, which asked bids on 32 tons of iron and steel, 32 tons of structurals, and some aluminum and stainless.

Southern California foundrymen are complaining that the price of cupola cast is getting too close to the price of pig for comfort and foundry pig continues in short supply because of a demand for basic.

Happy Birthday — Kaiser Steel Corp.'s No. 2 blast furnace observed its first birthday a little more than a week ago without fanfare—it just continued to pour out iron.

May Help—In light of the current nickel shortage, (The IRON AGE, Oct. 12, 1950, p. 181) a new process for recovering nickel from low grade ore developed by Prof. H. Gordon Poole, mineral engineering professor at the University of Washington, Seattle, offers possibilities.

The professor was recently granted a patent for a process that reportedly makes feasible the economic recovery of nickel from low grade ores. He has assigned patent rights to the U. S. government and hopes the method will make possible extraction of concentrate of nickel from olivine masses in the Cascade Mountains of Washington.

Aluminum Plant Located — It has been announced that the plant to be built by Harvey Machine Co., Torrance, Calif., in Montana will be situated one mile north of Rose Crossing, LaSalle Road, northeast of Kalispell. According to M. E. Darkenwald, company representative, construction is expected to start on facilities for the operation of two pot lines and may later be expanded to five lines if power becomes available.

More Fords — Ford Motor Co. has announced a long range modernization plan for its Richmond, Calif. assembling plant. Work is expected to start early next year unless war shortages prevent. Tentative plans would increase the capacity of the plant from 350 units to about 500 units per day.

Coke Supply Tight—Coke supply is tightening and 6000 tons of Dutch coke expected to arrive by the end of October will be welcome.

The scrap situation will be thoroughly discussed Nov. 2 and 3 when the Institute of Scrap Iron & Steel will hold its Pacific Coast Conference at Los Angeles.

How Crucible Steel keeps cost-per-ton down...with TIMKEN® bearings

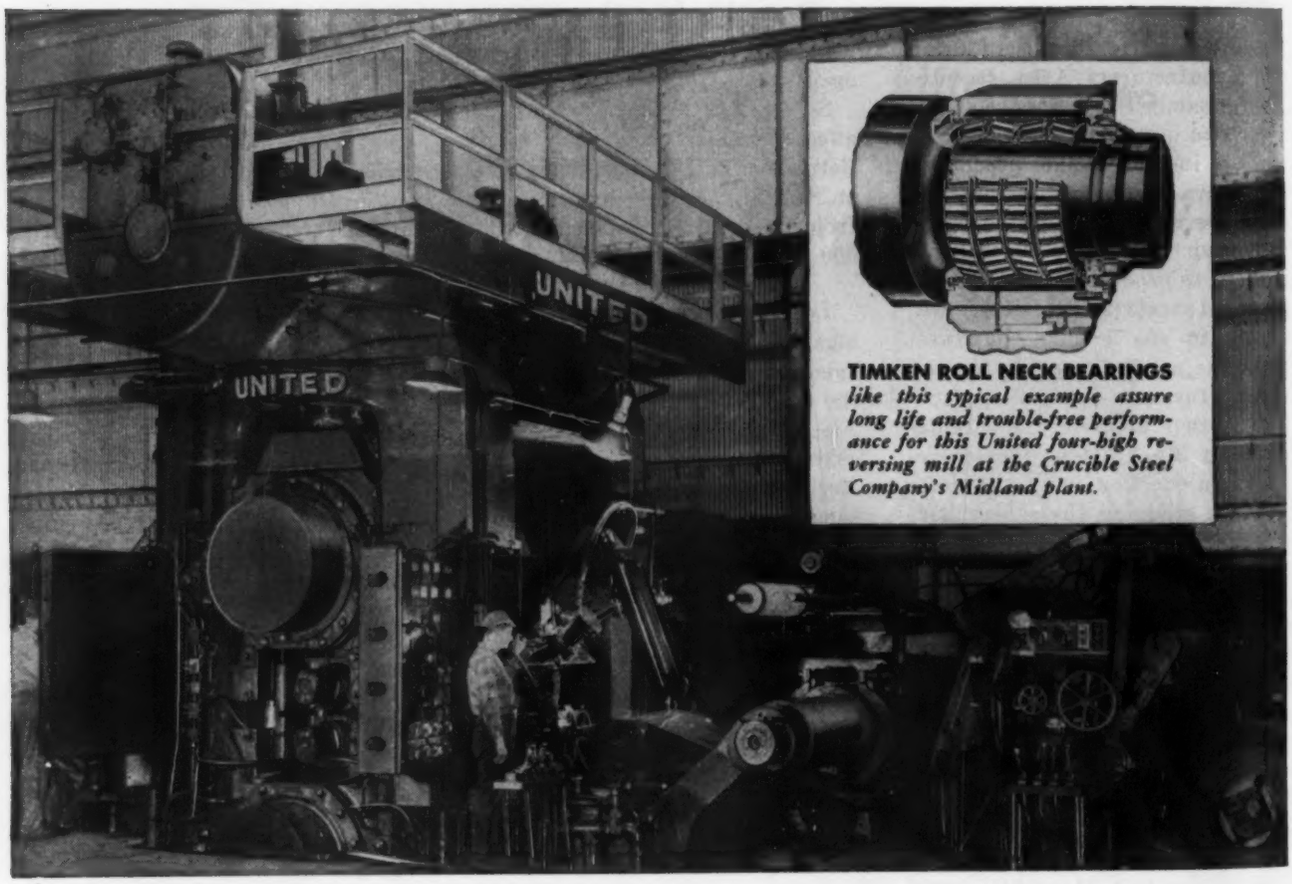
TO assure long life and trouble-free performance, Crucible Steel Co. chose this Timken®-equipped United 54" four-high reversing mill for their Midland, Pa. plant. The work rolls, back-up rolls and screwdowns all turn on Timken tapered roller bearings. Timken roll neck bearings reduce friction, permit higher rolling speeds and eliminate roll neck wear.

Thanks to balanced proportion design, Timken bearings provide greater mill rigidity, permit larger roll necks than ever before possible with tapered roller bearings. Roll neck strength is increased 50 to 60%. Load ratings are increased up to 40%. Tonnage records in typical mills indicate that the long life of Timken roll neck bearings keeps bearing cost-per-ton-of-steel-rolled to a minimum.

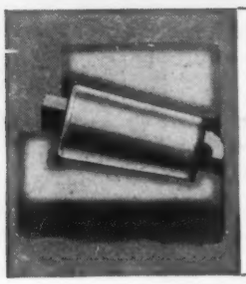
Timken bearings permit the use of simple grease lubrication. Complicated lubrication systems are unnecessary. Rolls can be changed easily and quickly. And since Timken bearings take both radial and thrust loads, no thrust bearings are necessary.

You can be assured of all these advantages in new or existing equipment by specifying Timken balanced proportion bearings for back-up and work rolls. For full information, consult our roll neck bearing specialists. Write The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.



TIMKEN ROLL NECK BEARINGS *like this typical example assure long life and trouble-free performance for this United four-high reversing mill at the Crucible Steel Company's Midland plant.*



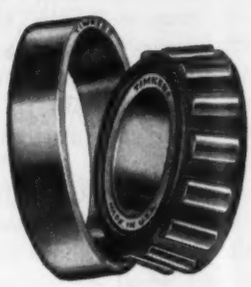
GREATER LOAD AREA

Because the load is carried on the *line* of contact between rollers and races, Timken bearings carry greater loads, hold shafts in line, wear longer. The Timken Roller Bearing Company is the acknowledged leader in: 1. advanced design; 2. precision manufacturing; 3. rigid quality control; 4. special analysis steels.

TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

TAPERED ROLLER BEARINGS



NOT JUST A BALL ○ NOT JUST A ROLLER ⬭ THE TIMKEN TAPERED ROLLER ⬭ BEARING TAKES RADIAL ◎ AND THRUST ⟷ LOADS OR ANY COMBINATION

THE FEDERAL VIEW

THIS WEEK IN WASHINGTON

By EUGENE J. HARDY

Symington Spreading—National Security Resources Board Chairman W. Stuart Symington is slowly, but surely, exercising his authority over the spreading program of limited mobilization. The most publicized incident illustrating this was Mr. Symington's order to the Federal Reserve Board to tighten up installment credit long before the board was ready to act. But much more significant is the Presidential assignment to NSRB of the administration of the 5-year amortization features of the new tax law.

With NSRB now the issuing agent for the "certificate of necessity" which approves fast write-offs of defense plants and equipment, the board for the first time assumes an operating job within the Federal government. The original intent of Congress was for NSRB to help in making policy by advising the President but to stay away from day-to-day administrative detail. The Administration has long ignored the intent of Congress when it was in conflict with the Fair Deal ideas, so this is nothing new.

Organization Not Ready — In any case, it will probably be a good many weeks before any certificates are issued to firms desiring the fast write-off for defense facilities installed or completed after Dec. 31, 1949. **Primary reason** is that neither NSRB nor the departments which will analyze the applications, Defense, Commerce, Interior, Agriculture, have set up an organization to handle the job.

There are also two major policy problems to be solved before the certificates can begin to reach industry: (1) Should time be taken to make a detailed survey of major industries so as to relate individual applications to the national need, and (2) should any of the applications be approved 100 pct as in early World War II, or should all of them be related to the potential civilian use of the plant or equipment involved?

No Guide to Expansion—On the first point, the Commerce Dept., which would handle the analysis of applications from the steel and metalworking industries, emphasizes that there is no Gano Dunn report (World War II) to provide a guide as to what is the overall national goal for steel expansion.

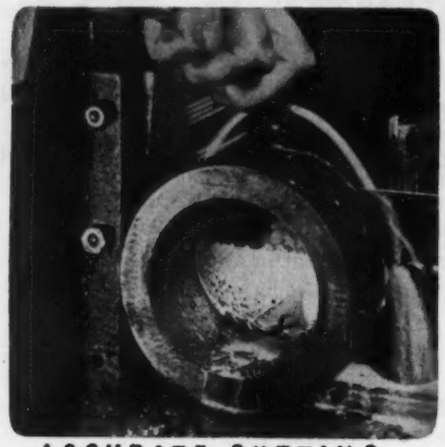
Obviously, some effort in this direction must be made, since without such a guide certificates might be issued for a lot of steel finishing facilities without sufficient supplementing furnace installations. On point two, it is very unlikely that many applications will be approved 100 pct, unless the war gets hot again, which means that industry will have to settle for a government decision as to how much of their plant expansion has a permanent civilian use and how much can be classed as purely part of the defense effort.

No Accurate Steel Picture — Confusion still reigns supreme when it comes to getting an accurate picture of defense needs for steel and other metals. For example, THE IRON AGE was told the following in the same division in NPA within a matter of 2 days: (1) There will be at least 20 pct cutback in all civilian output requiring metals, principally autos and appliances, by the end of next year; (2) the auto industry's steel take will be cut only about 10 pct by 1952; (3) the more stringent consumer credit controls will probably cut demand for autos to such an extent that steel demand will drop automatically and require no government action.

Gage Demand by Budget — About the only figure that can be relied on in relation to steel demands is that the present military appropriations of $29 billion will require 4.1 million tons of steel products. Not for a year, a month or any other period, but until the $29 billion is spent. It won't be spent within the period for which it was appropriated, the fiscal year ending next June 30, but it will be obligated, so the Munitions Board logically points out that the physical take of steel will be something less than 4.1 million tons.

So even if the military budget does get up to $60 billion after the elections and THE IRON AGE has seen steel demands based on this figure, the impact during the next 10 or 12 months cannot be too great, for if $29 billion can't be spent for materials that will be delivered in this fiscal year certainly even the wildest planner in Washington can't spend $60 billion in the same period, or even $45 billion.

Everything in Tubing . . .



ACCURATE CUTTING

LARGE STOCKS

QUICK SHIPMENT

in Stock . . . Quick Shipment

You'll get the tubing you want from Ryerson because our tubing stocks are the nation's largest and include a wide range of kinds and sizes. You'll get your tubing fast because our tubing departments are set up to move swiftly . . . equipped to cut your tubing to exact specification and deliver it when and where it's needed.

Among the types that await your call are seamless and welded mechanical tubing, stainless tubing, pipe and pipe fittings; structural tubing and hydraulic tubes to meet the new J.I.C. Specifications. Sizes range from 3/16" cold drawn seamless to extra heavy wall hot rolled seamless with a 14" O.D.

The friendly help of experienced Ryerson tubing men is always available to you on any tubing problem. Whether your order is large or small, for everything in tubing from stock write, wire or phone your nearby Ryerson plant.

OTHER PRODUCTS

CARBON STEEL BARS—Hot rolled & cold finished

SHEETS—Hot & cold rolled, many types & coatings

STRUCTURALS—Channels, angles, beams, etc.

ALLOYS—Hot rolled, cold finished, heat treated

PLATES—Sheared & U. M. Inland 4-Way Safety Plate

STAINLESS—Allegheny bars, plates, sheets, tubes, etc.

MACHINERY & TOOLS—For metal fabrication

RYERSON CERTIFIED STEELS

RYERSON STEEL

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • PHILADELPHIA • DETROIT • CINCINNATI
CLEVELAND • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO

Subzero Properties of Metal Surveyed

Part II.

By E. J. RIPLING
Research Associate,
Case Institute of Technology,
Cleveland

Face-centered cubic metals (most aluminum and copper base alloys, austenitic steels) retain their toughness and ductility, even at very low temperatures. The poor low temperature performance of martensitic steels tempered near 600°F, and of most annealed steels, is at least partly rheotropic.

THE effect of steel composition on low temperature properties has never been systematically investigated. However, the influence of carbon and nickel is important enough to warrant mention. Carbon is most important in its ability to reduce the toughness of steel at any constant testing temperature and especially at low temperatures,[14] Fig. 6.

Nickel has been found the most effective alloying element for improving low temperature behaviors. The effect of increasing nickel content on the transition temperature curves of a number of normalized steels is shown in Fig. 7.[14] In addition to decreasing transition temperature, the introduction of nickel causes the transition from a ductile to a brittle behavior to become more gradual. When the room temperature notch properties of a number of low alloy steels were compared on the basis of an equal hardness, SAE 2340 was found to be superior to SAE 5140 and SAE 1340.[15]

If the steel composition is changed to such an extent that it is no longer body-centered cubic (that is, no longer contains ferrite), it cannot be considered in a category with the steels being discussed here. For example, Hoke, Mabus and

Goller[16] presented the subzero temperature properties of a number of stainless steels. They found

In the first part of this two-part article, the author discussed low temperature properties of steel, effect of the embrittling agents on the transition temperatures, definition of transition temperature values, effect of tempering temperatures, and the relationship between low temperature strength properties and stress severity.—Ed.

the typical sharp decrease in toughness and ductility as a function of testing temperature only when the material was kept martensitic or ferritic, as shown in Fig. 8. When the composition was such that the steel became austenitic (face-centered cubic crystal structure) it no longer exhibited a transition temperature. To the contrary, the impact properties of the austenitic stainless steel improved as the testing temperature was decreased.

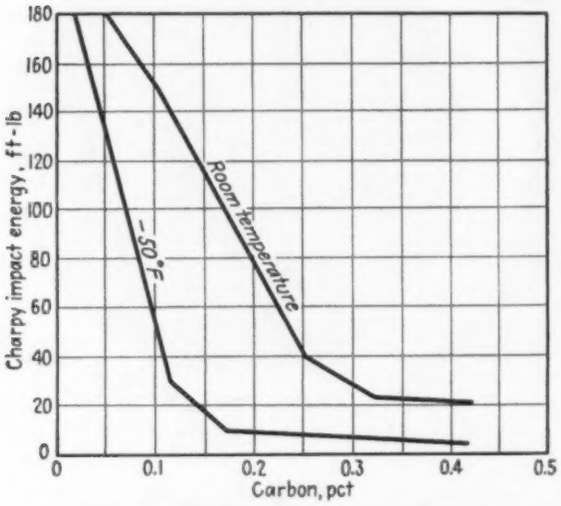


FIG. 6—Increasing carbon content reduces the toughness of steel, especially at low temperatures, as shown by the curves above. Armstrong and Gagnebin.[25]

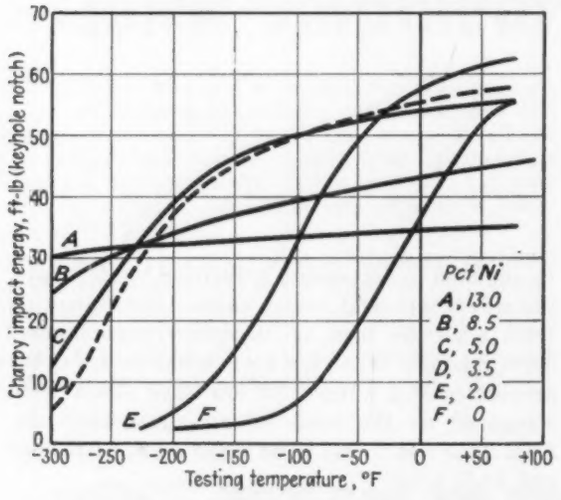


FIG. 7—Nickel was found to decrease the transition temperature on normalized low carbon steels, and cause the transition from a ductile to a brittle behavior to become more gradual. Steels A, B, C and D are 0.10 pct C; steel E, 0.15 pct C; steel F, 0.20 pct C. Data from "Nickel Alloy Steels."[34]

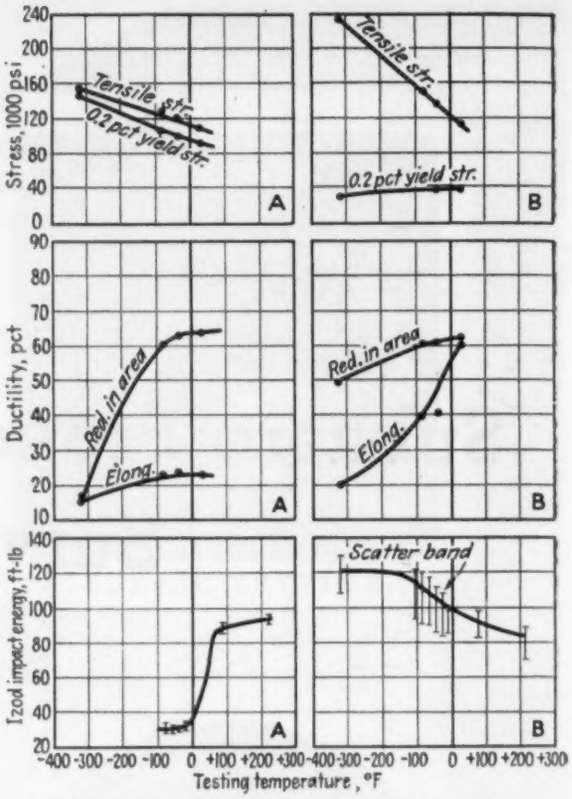


FIG. 8—Low temperature properties of two stainless steels: (A) Martensitic type 410, 12 pct Cr, 0.10 pct C, hardened and tempered; (B) austenitic type 303, 18-8, 0.28 pct S, annealed. Hoke, Mabus and Goller.[16]

In discussing low temperature properties, nonferrous metals must be considered in two separate groups. Practically all of the common structural metals, other than steel, crystallize in the face-centered cubic system (most copper, nickel and aluminum base alloys) and do not lose their ductility at low temperatures. This has lead to the erroneous conclusion that the ferrous materials evidenced an abnormal behavior in showing low temperature brittleness. It was recently pointed out by Sachs, et al[17] and by Seigle and Brick,[18] after a more thorough review of the properties of nonferrous metals, that only the face-centered cubic metals possessed low-temperature ductility. The other nonferrous metals exhibit transition temperatures similar to that shown by steel.

Data on the ductility of nonferrous metals are separated in Fig. 9 to distinguish the face-centered cubic, low temperature ductile materials from the others. Ductility measurements other than contraction in area, are also available which indicate that tungsten[22] and molybdenum[18] also show a transition temperature. All metals, whether ferrous or nonferrous, show the increase in hardness, yield strength, tensile strength and modulus of elasticity mentioned previously.

A considerable amount of research has been conducted in an attempt to explain the fast de-

crease in properties in the vicinity of the transition temperature. When mechanical means are used to study this problem, however, only one fracturing point (as determined by the fracture stress and the fracture ductility) can be obtained for any particular testing condition. As a consequence, it becomes difficult to evaluate the effect of any particular testing variable.

To overcome this limitation, another method of investigation has been found rather fruitful. This consists of straining a number of metal specimens various amounts under one set of physical conditions (for example, stretching an unnotched specimen at room temperature). These cold worked specimens are then further deformed to fracture under some second set of physical conditions (such as by testing at a low temperature).

Results obtained on tests of this type are most readily analyzed when the ductility left in the second straining operation (the retained ductility) is plotted as a function of the deformation effected in the first operation (the prestrain) as shown in Fig. 10. The ductility value found easiest to use in plots of this type is the maximum natural strain which is equal to the natural logarithm of the ratio of the original area to the area after fracture.

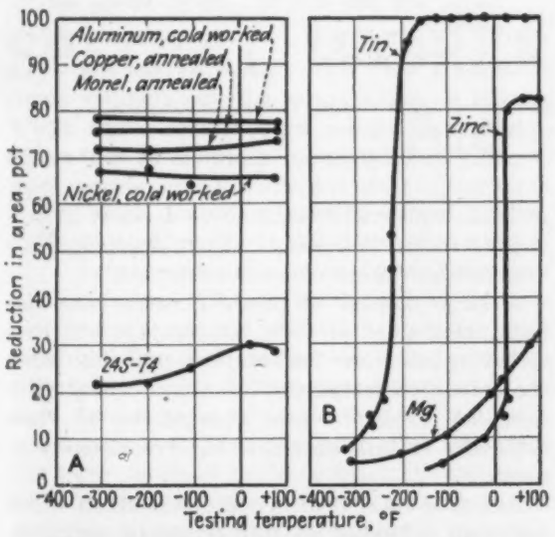


FIG. 9—Low temperature ductility of (A) face centered cubic, and (B) structures other than face centered cubic, nonferrous metals. Data in A and Mg curve from McAdam, Mebs and Geil[19]; tin, from Kalish and Dunkerley[20]; zinc, from Goerens and Mailaender.[21]

The aluminum alloy 24S-T4, which is face-centered cube and consequently does not exhibit a transition temperature, was investigated by a technique of this type by S. I. Liu.[23] Specimens of this material were first stretched various amounts at room temperature; the prestretched specimens were then cooled down to the temperature of liquid nitrogen (—321°F) and further stretched to failure. The data in Fig. 10 showing the simple relationship between prestrain and

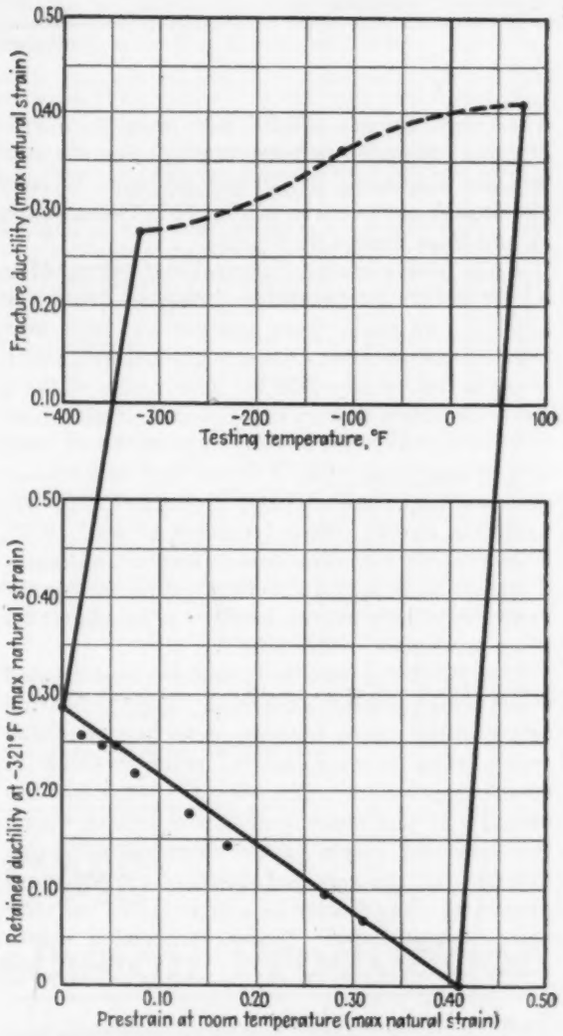


FIG. 10—Effect of prestraining at room temperature on the ductility that is left, 24S-T4 aluminum alloy. Retained ductility at zero prestrain is equal to ductility at —321°F; abscissa value for maximum possible prestrain is represented by room temperature ductility, as shown by the tie lines. Liu.[23]

retained ductility were obtained on this alloy. It should be noted that for this material which does not show a transition temperature, the effect of room temperature prestrain was merely that of continuously lowering the ductility still available at the low temperature.

When other metals which did show a transition temperature between room temperature and —321°F were subjected to this same straining condition, the retained ductility-prestrain curve was not so simple as that shown in Fig. 10. For example, the data collected by Ripling and Baldwin[24] on quenched SAE 1340, tempered at 600°F, are shown in Fig. 11. Straining this material at room temperature before subjecting it to the low temperature test decreased the ductility still available at the low temperature only over a limited range of strains. When the prestrain exceeded these small values, the low temperature ductility rose to a maximum before it began de-

creasing to become equal to zero when the ductility was exhausted in prestraining. For the subsequent discussion, it will be convenient to label the branch of the curve in Fig. 11 between points A and B as the stable branch.

SAE 1340 was also quenched and tempered at a series of temperatures between 300° and 1100°F, and again these martensitic steels were prestrained at room temperature before testing them to failure at −321°F. The results of these tests are shown in Fig. 12. Only the steels which showed a transition temperature between room temperature and −321°F under this mild straining condition showed complex retained ductility-prestrain curves (those tempered at 400°, 500°, 600° and 700°F). The steels which did not show a transition temperature effect within this range exhibited simple curves similar to the aluminum alloy previously discussed.

This led to the conclusion that the heat treated steels which exhibit abnormally high transition temperatures were in some defective condition which could be overcome by prior working at room temperature. In order to determine the ductility in the absence of this defective condition, the end points of the extrapolated stable branches of the retained ductility curves (zero prestrain) were plotted as a function of the tempering temperature. These extrapolated values

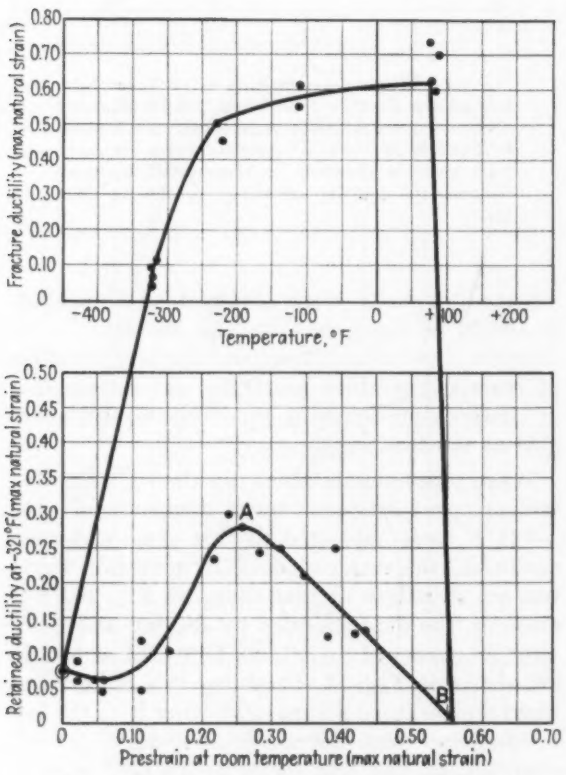


FIG. 11—Curves showing effect of prestraining at room temperature on the ductility that is left; SAE 1340, quenched and tempered at 600°F. Ripling and Baldwin.[24]

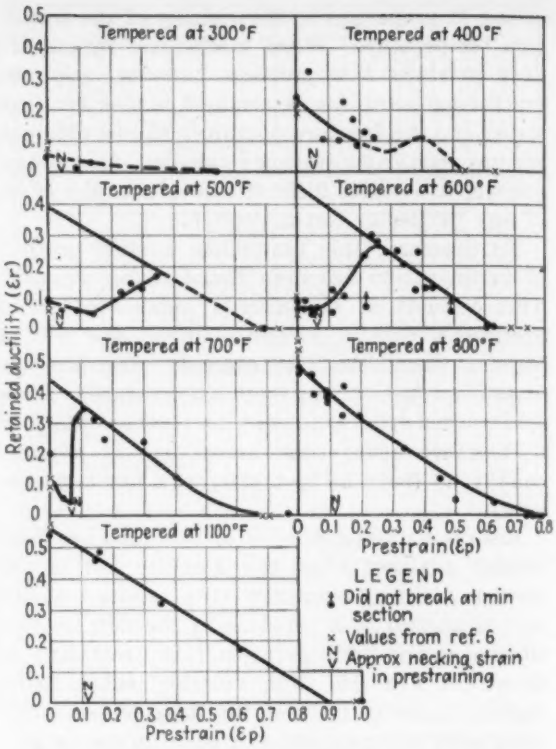


FIG. 12—Results of tests for determining the effect of tempering temperature and prestraining at room temperature on the retained ductility of martensitic SAE 1340 steel at —321°F. Ripling and Baldwin.[24]

formed a smooth curve with the ductility points obtained at higher temperatures. The 600°F ductility and toughness minimum as well as the abnormally high transition temperatures were, as a consequence, thought to be a result of this strain-curable deficiency. This deficiency has been labeled "rheotropic embrittlement."

A large number of pearlitic steels have also been prestrained at room temperature and then tested at some low temperature, probably below the transition temperature. Almost all of these annealed steels[17, 25] were thought to be rheotropically embrittled below the transition temperature.

Annealed SAE 1340 is one of the steels which has been subjected to this straining condition. Although the data were not sufficiently complete, Troiano[26] suggests that the extrapolated ductility value for zero prestrain for pearlitic 1340 might be the same as the ductility value obtained on martensitic SAE 1340 at the same hardness.

As stated earlier, the low temperature behavior of steels was closely related to the severity of the stress condition. Data presented by Sachs, Ebert and Brown[35] showed that in the presence of a sharp notch the ductility, as determined by a static tensile test at room temperature, for a number of steels tempered at about 600°F was very low. It seems logical to suppose that the sharp notch (a 60° "V" notch whose radius at the notch bottom was less than 0.001 in.) these investigators used was sufficiently severe to cause

the transition temperature to exceed room temperature.

Consequently, Ripling and Baldwin prestrained SAE 1340 specimens, quenched and tempered at 600°F, in an unnotched condition at room temperature. The sharp notch used by Sachs, Ebert and Brown was then machined into these prestrained specimens after which they were again stretched to failure at room temperature. This straining technique increased the notch ductility of the steel from less than 0.5 pct at zero prestrain to 2.5 pct at a prestrain of 30 pct. This enormous improvement in room temperature notch properties can only be expected from room temperature stretching if the material is such that the transition temperature lies below room temperature in the unnotched condition and above room temperature in the notched condition.

The author wishes to express his gratitude to W. M. Baldwin, Jr., and L. J. Ebert for their help in preparing this article.

References

[13] *T. N. Armstrong and A. P. Gegnebin, "Impact Properties of Some Low Alloy Nickel Steels at Temperatures Down to —200°F". Trans. ASM Vol. 28, 1940, p. 1.*

[14] *"Nickel Alloy Steels", Second Edition, International Nickel Co., Inc., New York.*

[15] *G. Sachs, L. J. Ebert and W. F. Brown, Jr., "Comparison of Various Low Alloy Steels by Means of the Static Notch Bar Tensile Test", Metals Tech., December 1946 T. P. 2110.*

[16] *J. H. Hoke, P. G. Mabus and G. N. Goller, "Mechanical Properties of Stainless Steels at Sub-zero Temperatures", Metal Progress, May 1949, p. 643.*

[17] *G. Sachs, et al, "Mechanical Relations in Fracturing of Metals", Case Institute of Technology, Office of Naval Research, U. S. Navy, N6-ori-273/ T. O. I, Report No. 1, 1947.*

[18] *L. Seigle and R. M. Brick, "Mechanical Properties of Metals at Low Low Temperatures; A Survey", Trans. ASM, vol. 40, 1948.*

[19] *D. L. McAdam, Jr., R. W. Mebs and G. W. Geil, "Technical Cohesive Strength of Steels and Some Light Alloys at Low Temperatures", Proc. ASTM, vol. 44, 1944, p. 593.*

[20] *H. S. Kalish and F. J. Dunkerley, "The Low Temperature Properties of Tin and Tin-Lead Alloys", AIME, Metals Tech., September 1948, T. P. 2442.*

[21] *P. Goerens and R. Mailaender, "Cold and Hot Shortness of Steel and Several Other Metals in Tensile Tests", Forsch. Ver deut. Ing., No. 295 1927, p. 18.*

[22] *N. Davidenkov and E. Shevandin, "Brittle Strength of Tungsten", J. Tech. Physics, USSR, vol. 8, 1938, p. 1507.*

[23] *S. I. Liu, "The Flow and Fracture Characteristics of the Aluminum Alloy 24ST-4 as Affected by Strain-Thermal History", Case Inst. of Tech. Office of Naval Research, U. S. Navy N6-onr-273/I Nov. 1949.*

[24] *E. J. Ripling and W. M. Baldwin, Jr., "Rheotropic Embrittlement of Steel", Trans. ASM, (In Print).*

[25] *E. J. Ripling and G. Sachs, "The Effect of Strain-Temperature History on the Flow and Fracture Characteristics of an Annealed Steel", Journal of Metals, vol. 1, No. 2, 1949, p. 78.*

[26] *A. R. Troiano—Private Communication.*

SPECIAL WORKROOMS Aid Precision Production

WHEN increasing demand forced production expansion of Air-Gage Tracer duplication units for its lathes and other turning equipment, Monarch Machine Tool Co. was faced with a special production problem. Not only did increased performance requirements dictate greater production precision, but it became necessary to eliminate selective assembly of the units by producing to such close tolerances that parts would be perfectly interchangeable.

To accomplish this, a special manufacturing area was set up where semi-machined hydraulic valve and air circuit parts are finished to tolerances considerably closer than had been previously attempted or could be reached under ordinary shop conditions.

The work is done in two rooms, each furnished with filtered air of carefully controlled humidity and temperature held constant at 75°F. Here Air-Gage Tracer components are made to tolerances ranging from 0.0001 to 0.0003 in. total. Finished surfaces are 1 and 2 microinches on stainless steel of 55-58 Rc hardness.

Standard equipment of the most modern type is used in grinding, honing, boring and facing operations, as well as in the 32 different checks for finish and accuracy made on the various parts. Examples of the accuracy attained are hydraulic valve lands, ground to ±0.0001 in. tolerance for spacing, and bronze bushings made to a tolerance of ±0.00005 in. on both OD and bore. Depth of metering ports on the hydraulic valves is held to ±0.00015 in., and valve stems are ground to a tolerance of 0.00005 in. on the diameter. Other surfaces are finished with comparable accuracy.

One of two air-conditioned rooms at Monarch Machine Tool Co., Sidney, O., where Air-Gage Tracer units are finished to extremely close tolerances on standard equipment.

Assembly and testing is also done in the air-conditioned rooms. Each unit is subjected to a 6-hr test in which it must at all times check within 0.0001 in. against a master gage.

New Techniques Added To Pressure Welding

Some new types of cold welds have been developed which overcome objection to old methods. Dissimilar metals can now be more conveniently welded and cold welding methods of joining very thin sheets have been improved.

THE Koldweld Corp., New York, has recently developed a supplementary cold pressure welding technique called *trap welding*. This technique was developed to increase the number of uses being made available to licensees of the process. In cold pressure welding only the simplest tools are required, and their use does not demand special training or the employment of skilled labor. Welds of uniform quality are produced easily, quickly, and at low cost.

Parts to be welded must be free of all surface oxides. The most efficient method of cleaning the surfaces employs a rotating wire brush. Cleaned but untouched parts can be successfully welded within 24 hr after cleaning, but brushing a finger across the surface makes the weld impossible.

Pressures required for welding range from 20,000 to 40,000 psi, depending upon metal thicknesses. Successful welds depend upon use of proper pressures and proper degrees of compression. For example, in welding two equally thick pieces of commercially pure aluminum, a successful weld will take place only if they are squeezed down to 30 pct of their combined thicknesses.

* *The Koldweld process, a method of cold pressure welding without the use of heat or electricity, was developed by the General Electric Co., Ltd., of England, and was made available in this country late in 1949 by the Koldweld Corp.*

The trap welding technique permits the welding of inserts into similar or dissimilar nonferrous metals. A typical trap weld is shown in A of Fig. 1. The cross-sectional view of this

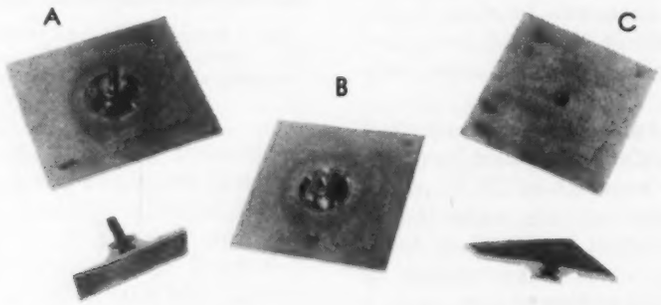


FIG. 1—Inserts are made integral with utensil parts through cold pressure welding. View A shows a threaded insert trap welded into an aluminum sheet, A ½-20 thread was formed in plate B by welding a male steel insert into the aluminum, then removing the insert. View C shows a threaded female steel insert trap welded to the plate.

weld, below part A, shows how the metal has flowed around the insert. This is the equivalent of plastic molding without the application of heat. Other types of inserts can also be molded between similar or dissimilar non-ferrous metals. For example, a thin steel insert, such as a sheet or a wire netting, can be molded within aluminum sheets.

At B of Fig. 1 is shown the threaded aluminum base with a hobbed ¼-20 thread formed during the welding operation. The threading was done by molding the base around a steel screw, then removing the screw and leaving the threads inside the base. Another method, shown in C of Fig. 1, involves forming the base around a threaded steel nut or insert. The insert is constructed with shoulders as shown in lower cross-section view. In all types of trap weld formation, the back of the work remains smooth.

Tensile tests were made on the standard ferrous 10-32 thread screw stud in A of Fig. 1. The steel stud broke outside the weld at slightly over 1500 lb. Although the welded joint showed distortion, it did not break. The distortion did not occur until tensile loads of 1000 lb were reached. During the tests, the joint remained air-tight and moisture-proof.

The other previously publicized methods of cold pressure welding include *straight-line welds*, *wave welds*, *stagger welds*, *sandwich welds*, and *lap welds*. Each has its own particular use. Wave welds are used on flat stock where the standard straight-line weld is considered undesirable because of structural or esthetic considerations. They are applied in the same manner as the straight-line welds. Tools used for making this weld consist of an element having a wave-form projection and a flat plate. Part A in Fig. 2 shows both sides of a wave welded joint.

It has always been difficult, and sometimes impossible, to weld thin metal sheets to heavy bar stock. This problem was solved with the development of the stagger weld. This weld places dots, or short straight-line welds, along two or more parallel lines. It is formed with a special tool applied to the thin side of the work. An example of a thin sheet welded to a heavy rectangular bar is part B of Fig. 1.

To overcome the many objections to the indentations of the surface of the work produced by the application of the pressure welding tool, the sandwich weld was developed. In most cases the objections were on the grounds of appearance. When the smooth finish determined the functioning of the part, the grounds were technical.

The first step to overcome these objections was a weld with indentations on only one side of the weld, the other side remaining smooth. The next step was the development of a method where a third piece of metal was used to fill up the indentations, the three pieces being welded together.

The ultimate development was the sandwich weld, part C, of Fig. 1, where the third piece of metal is sandwiched between the two work pieces and all three are welded together in a single operation. The illustration shows a piece of wire used as the third or filler piece. During the welding operation the wire flattens out between the sheets, producing a wide and strong weld area without indentations on either side.

A government department required the manufacture of large thin-walled sheet metal containers. They had to be air-tight, moisture-proof, and made from single sheets. The limited quantities involved did not justify the construction of expensive tools. A slight redesign of the container blank permitted the sides of the container to overlap slightly. These overlapping sides were then lap welded to produce the container shown in Fig. 3.

The resulting lap weld has a strength of 130 pct of the original material. When boxes are

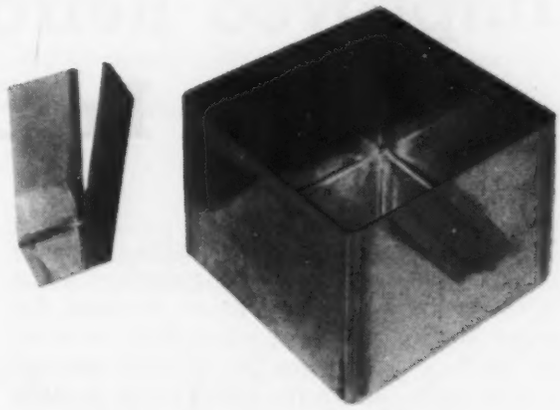


FIG. 3—Various sized aluminum containers are lap welded with one simple corner-weld tool. The finished containers are air-tight, moisture-proof, and made from single sheets.

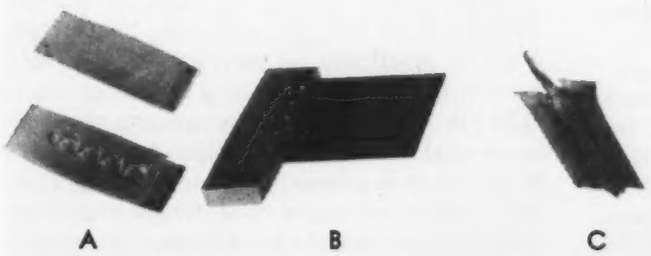


FIG. 2—Parts of similar thickness are wave welded in A. A thin sheet is attached to a heavy rectangular section with a stagger weld at B. For smoothness on both surfaces, parts can be sandwich welded as in C.

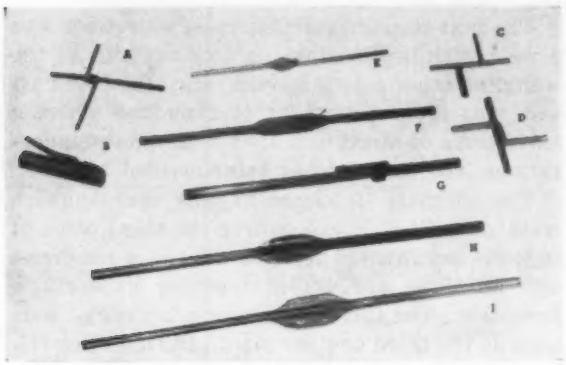


FIG. 4—Wires can be pressure joined. The combinations of non-ferrous wire shapes and materials are practically unlimited.

made from thin sheet metal and heat is applied during the manufacture, the sides usually warp and become misshaped. This tendency was completely eliminated through the use of the cold pressure welding process. In this case, the same corner weld tool was used for the fabrication of several different sizes of the same type container.

The illustration, Fig. 4, shows welds on various conductors. A two-conductor cross weld, A, is made in a single operation. Copperweld Steel Co. has welded a small copper wire to their copper-clad steel grounding rod, B. At C and D are aluminum and conductors, before and after trimming.

A weld of two copper conductors is shown at E. At F is seen a joint between two stranded copper conductors. A method of pigtailing a conductor to a rod with several turns of the conductor around the rod to reduce the mechanical strain on the weld is shown in G. At H is shown the weld of an aluminum conductor to a copper conductor of the same diameter. At J are shown two copper conductors welded together.

Previous Articles

"Cold Welding Aluminum," THE IRON AGE, Aug. 19, 1948, p. 84.
"Cold Welding Process Requires No Heat—Only Pressure," THE IRON AGE, Nov. 10, 1949, p. 119.

Improved Refractory Now Produced in Volume

VOLUME production of mullite, a tough crystalline compound long recognized as an exceptionally durable refractory material for severe furnace conditions, is now being produced by The Babcock & Wilcox Co. The new material is principally used in the manufacture of B&W Allmul firebrick, but will also be available in the form of grain and as a ramming mix.

While furnace engineers have long been aware of the advantages of mullite, high production costs have limited the range of application of the practically all-mullite type of refractory. The significance of Allmul is that its economical mass production will open the way to widespread application in a great range of industrial furnaces.

The term mullite refers to a chemical composition with the formula $3Al_2O_3.2SiO_2$, rarely found alone in nature. Certain amounts of it are formed when any mixture of alumina and silica are heated to the proper temperature. However, unless a correct proportion of materials is used, the mullite crystals are small and widely separated. They are embedded in a matrix of silica which will form a liquid with the mullite at a temperature as low as 2813°F. On the other hand, the ingredients for Allmul are so proportioned as to form a high percentage of mullite crystals with no free silica. The small amount of excess material consists mainly of corundum (crystalline alumina) which is also noted for its high refractory properties. The strong, massive structure of the mullite crystals is produced by using an electrically fused grog in conjunction with an unusually high final burning temperature.

Allmul melts at 3335°F. Its cold crushing strength is 1.7 tons psi, and under temperature it shows practically no deformation when saturated with heat at 3050°F and loaded for 1½ hr at 25 psi. It also possesses remarkable resistance to thermal shock. When heated to 3000°F for 24 hr and then alternately heated to 2550°F and chilled in an air-water blast for 12 cycles, Allmul shows no sign of spalling loss.

DESIGN
—makes the difference

By STEPHEN BAUR
Associate Editor,
THE IRON AGE

Product redesign helps manufacturers to stimulate sales and maintain competitive positions. Restyled and re-engineered models have greater sales appeal because of appearance and performance improvements. Often, redesign lowers manufacturing costs.

DESIGN has helped solve many sales problems. Alert manufacturers constantly appraise the appearance and performance of their models. When they want to stimulate sales or when competition's product gains an edge, design specialists are often assigned to the problem of revamping the product. If product looks are to be changed, *industrial designers* are put to work on contour restyling. If product performance is to be improved, *design engineers* are put to work on mechanism redesign. Complete redesign of a product is usually accomplished through the cooperative efforts of both these specialists. Occasionally, the revamping is handled by a man skilled in both specialties.

In the case of the complete redesign of the Kelly Two printing press, designers from Donald Deskey Associates, New York, worked in close cooperation with engineers of the American Type Founders Sales Corp., Elizabeth, N. J. The new press gives the output of larger presses while using the same horsepower, the same floor space, the same complement and size of rollers, and the same manpower to operate as the previous model. Its appearance was drastically simplified. Now designated the Kelly Three, it has most of its working mechanism enclosed by smooth sheet metal housings and guards, Fig. 1.

The original press handled sheets up to 24x35 in. The new model handles sheets up to 25x37 in. This is almost that of the next largest press size, which is 25x38 in. The new press operates at reduced cost since it uses less paper for trim and more for printed matter. It saves 25 sq in. on every sheet that would otherwise be run on a 25x38-in. press. Because of this, it can compete with presses costing thousands of dollars more.

Although it is approximately the same size as its predecessor, the redesigned press is more compact. For this reason, it can handle work of larger machines and still fit into the same 83x180-in. floor area. In comparison with standard 25x38-in. presses, it saves a minimum of 86 sq ft of printing shop floor space. Also, being in the 24x35-in. size class and turning out work comparable to the next largest size presses, the difference between the two labor scales is saved.

FIG. 1 Redesigned Kelly Three printing press gives higher output while using same horsepower, floor space, and manpower as previous model.

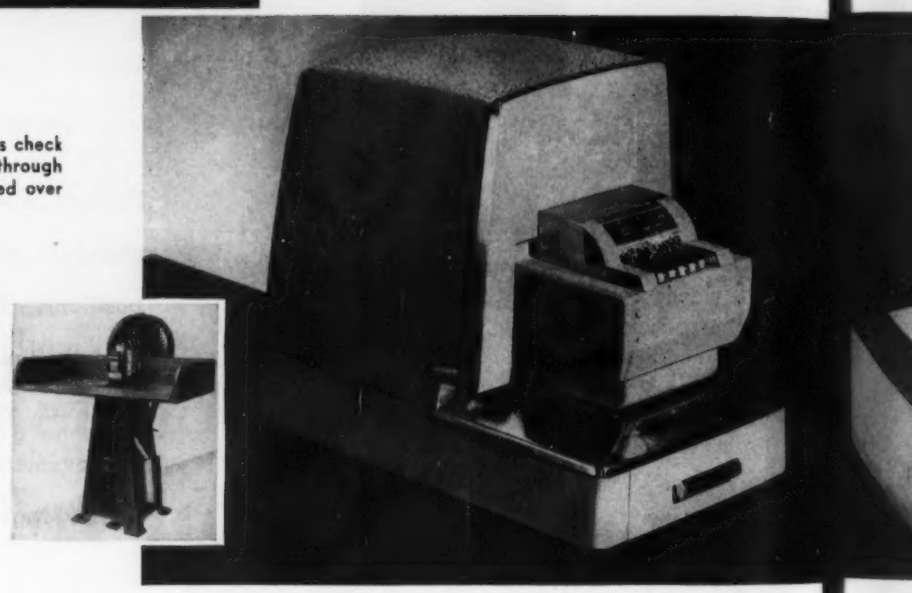


FIG. 2 Material costs of the Cummins check perforator were reduced over 75 pct through redesign. Production time was reduced over 65 pct.

Industrial Design

Continued

Using the New York Employing Printers' Green Book, the new press saves a differential of $0.67 per hr.

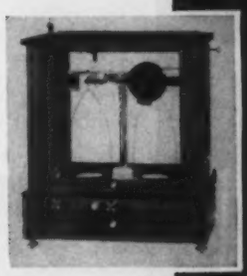
Top speed of the press was raised from 3000 to 3500 impressions per hr, a 16.6 pct increase. This was accomplished without increase in motor size by lowering the weight of the bed. Changing from cast iron to weldments reduced bed weight approximately 150 lb. However, even with a lighter bed, the faster speed meant a higher moment of inertia. To offset this, the overall weight of the press was increased by 1250 lb by making the structural frame members solid instead of hollow.

An example of a product redesign with a threefold purpose is the Cummins model 300 check perforator. This unit was completely redesigned to improve looks and performance and to reduce production costs. The redesign was accomplished through the coordinated efforts of designers from Raymond Loewy Associates, New York, and the engineering staff of the Cummins Business Machines Corp., Chicago.

The former model was driven by a ¼-hp, 1140 motor connected to a punch press type flywheel mechanism. Matrix rings in the old unit were made from solid bars. They were set by removable pins which, if lost, would not permit the selection of proper punch combinations. Punch waste, if not emptied from its storage bucket, clogs the chute and damages the machine.

The new model, Fig. 2, weighs only 44 lb, performs the same operations of perforating checks, bills, documents and stamps for cancellation, and is portable. The machine is actuated by insertion of paper in die block opening or by a manual button. It features a new driving mechanism that operates only when the punching operation is performed.

Punches are depressed by an eccentric shaft mechanism that is worm gear driven by a ⅜-hp, 11,000-rpm, series, stop and start motor. Marking characters are selected by depressing matrix keys, which permit the circular sintered metal matrix rings to rotate. If the character selected is not properly aligned, a safety switch prevents



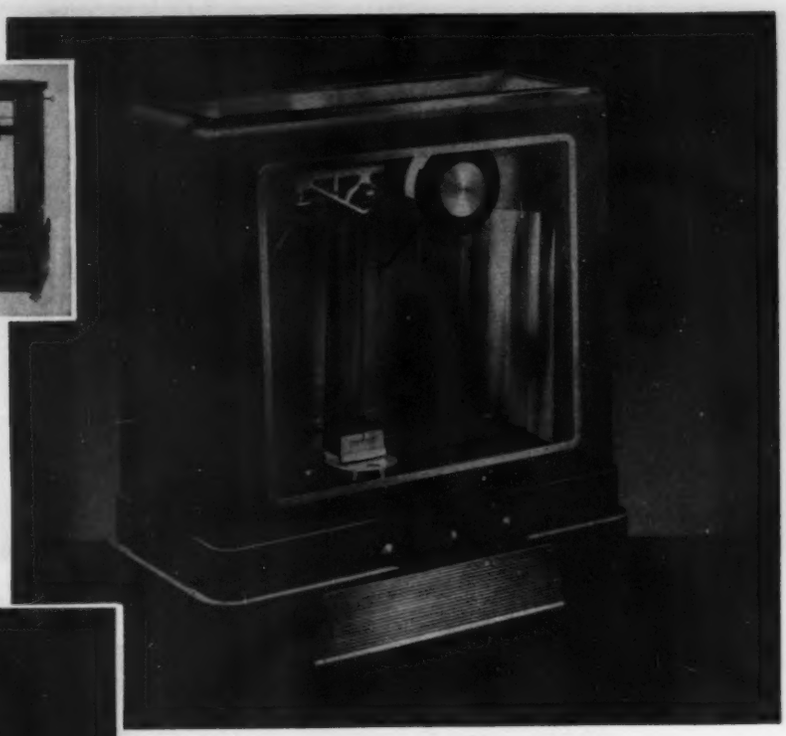


FIG. 3 Standardization of diecast aluminum parts offset high initial tooling costs for the redesigned Christian Becker balance.

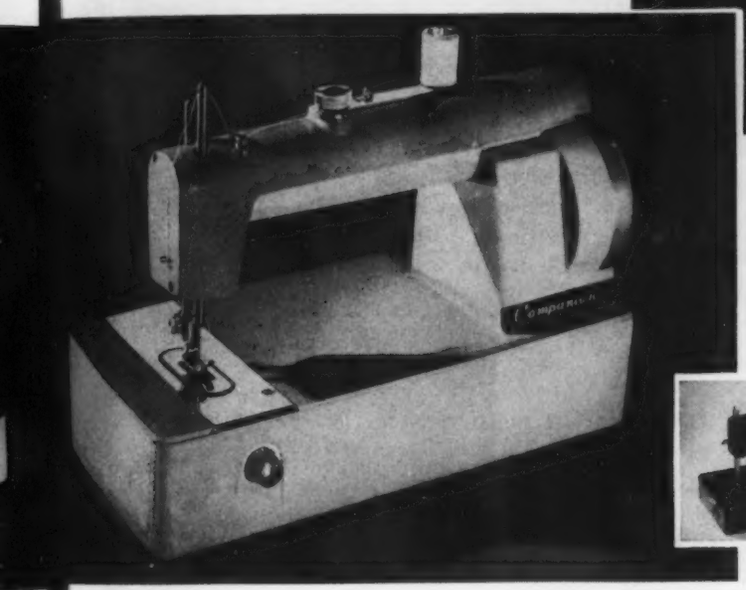


FIG. 4 New Tropic-Aire portable sewing machine weighs only 8½ lb, threads simply, and has fewer moving parts than the prototype model.

the machine from operating. When it needs emptying, the waste drawer is automatically forced out of its guides and opened.

The old machine had a smooth, baked, black Japan finish. After assembly, it required additional finish machining operations in order to apply the paint. The new model is finished with a light gray Wrinkle enamel over its cast aluminum housing and frame. Comparison shows the space savings. The old model is 19 in. wide, 20 in. deep, and 55½ in. high; the new unit is 8 in. wide, 13 in. deep, and 11 in. high. Material costs were reduced approx 78 pct, production time was reduced approx 67 pct; and the list price of the perforator was reduced approx 33 pct.

The Torsion Balance Co., Clifton, N. J., wanted to improve the appearance of its conventional, mahogany-cased, Christian Becker balance. The project was assigned to designer Carl Otto, New York. Improved looks along with gains in rigidity and stability resulted from the substitution of diecast aluminum housing components for those of mahogany, Fig. 3. Precision in assembly was achieved by integrally casting into the cabinet base the mounting studs and the bosses for the weighing column and controls.

For standardization of parts to offset the high initial tooling outlay, the two side frames are cast from the same die. Also, front and rear door castings were made interchangeable. To facilitate weighing long rods of unusual shaped objects, the slanted front and rear doors were extended around the sides of the case. The rear door is glazed with translucent white glass to give a background for the weighing operation and to allow diffused light to enter. The front door is counterbalanced by cables and springs to make lifting easier and smoother.

In the new model, a Chain-O-Matic device replaces weights from 0.1 to 1.1 g. Better visibility and accuracy in weighing is achieved through use of clear, bold calibrations on the beam and on the Chain-O-Matic. All metal surfaces near calibrations are "grained" to reduce reflections. The interior of the case is finished

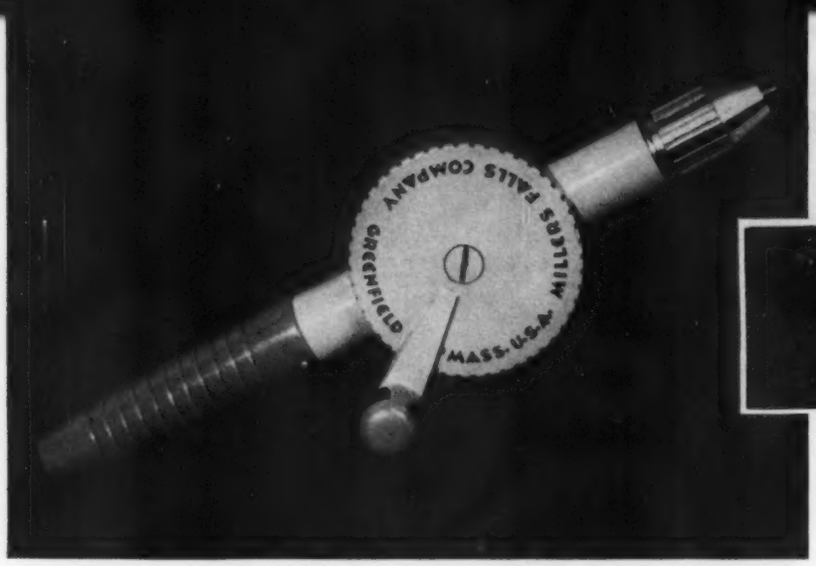


FIG. 5 Redesigned Miller Falls hand drill has molded plastic handle, diecast aluminum body. Fewer parts and finishing operations reduce cost.

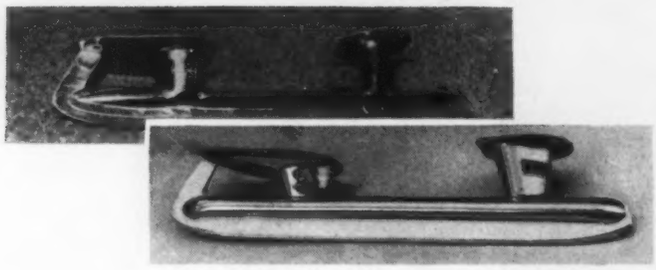


FIG. 6 Forming and assembly operations on new Union Hardware hockey skate are considerably reduced. Components are now 4 instead of 8.

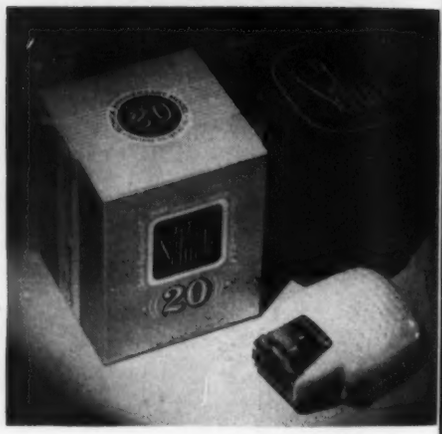


FIG. 7 Rearranged internal components allowed shape change on Schick electric shaver for easy grip. Project included boxing and packaging designs.

Industrial Design

Continued

in a matt white for the optimum light reflection.

The old control knobs were replaced with plastic ones having metal inlays. Knobs are now grouped according to function. Knife edges and bearings are of agate. The beam is machined from a solid piece of special aluminum alloy. The model shown has a capacity of 200 g and a sensitivity of 1/20 mg.

The increasing popularity of portable sewing machines for home use created a demand for a new type machine. Until recently, the two types available to the public were (1) a slightly scaled down machine that retained all the operating features of a cabinet model, and (2) toy sewing machines of limited use.

To fill the gap between the toy and the full feature portable, Tropic-Aire, Inc., Chicago, planned a model to sell in the $50 price range, to weigh under 9 lb and to have a variable speed drive that could handle all types of sewing jobs. In addition, they wanted it durable enough to back up a guarantee of 1 year on electrical parts and 20 year on mechanical parts.

After the prototype model was built, Tropic-Aire secured the service of Raymond Loewy Associates to help redesign the machine for sales appeal. The major objective was that it appeal to the woman buyer. In particular, the industrial designers were given the job of reducing external moving parts, simplifying threading operations, and attaining visual simplicity.

The finished product, Fig. 4, is lightweight, economical in price and operation, and has simplicity in both use and styling. It weighs 8½ lb, is powered by a 1/30-hp universal type motor, is controlled by a foot-operated rheostat, and is driven by three molded nylon gears that require no lubrication. For quietness and long life, gear teeth are machined and gear centers held to a tolerance of 0.001 in.

As can be seen in the "after" photograph, the motor and drive units are now enclosed. This cleaned up the appearance and made the unit perform more quietly. The tension device and spool holder were combined into one unit on a platform on top of the machine arm. Threading op-

erations were reduced to two, eliminating pushing threads through holes. Finger tip control for the needle was moved to the front of the machine for easy mechanical adjustment.

Repair and servicing were simplified by designing the arm in two halves. These meet on a vertical lengthwise plane and are held together by two screws. In addition, a lift panel in the base around the needle provides good access to the mechanism for adjustments. To reduce dust collection and friction with fabrics, the finish is baked enamel instead of the original black Wrinkle. All steel parts are stainless or have a rustproof finish.

Machining Operations Eliminated

Miller Falls Co., Greenfield, Mass., wanted a hand drill that would operate more easily, look better, and be more easily manufactured. The previous model had wooden handles reinforced by ferrules, a gray cast iron gear and body, and steel pinions. The handles frequently broke. Exposed gears necessitated a side handle for use in certain positions. Dirt accumulated in gear and bearing surfaces. The gray iron castings required several machining operations before assembly.

The new model, Fig. 5, designed by Francesco Collura, makes use of plastic and diecast aluminum components. Its molded plastic handle eliminates ferrules, rivets, studs, and the finishing necessary with wooden handles. Also, handle warpage and breakage are minimized. The diecast aluminum body encloses all gearing and eliminates side handles and studs. The chuck was recessed into the body to protect the chuck spindle against dirt. Gears are relatively sealed and lubricated. The company has adopted this body styling as the design theme for its entire line of tools.

The manufacturers of the Schick electric shaver had the problem of putting out an anniversary model that would be strikingly different, yet still functional and of good appearance. Meeting these conditions in consumer goods is slightly more difficult than redesigning industrial products, since changes in the former are made more frequently. The finished product after each redesign must have a newness and still not tend to approach the ridiculous.

Schick, Inc., Stamford, Conn., assigned the job to designer Carl Otto. The goal of the new design was an electric razor that would be held in any position and still have positive and comfortable gripping qualities. The design emerging had a rounded rectangular form and incorporated a dimpled texture on front and back, Fig. 7. The new shape, dictated by its feel in the hand, was achieved by the complete rearrangement of the internal components. The dimpling provides a good grip without visibly disturbing the form. It also creates a simple and distinctive decorative design.

Its one-piece name plate is coined in sheet brass and chrome plated. Trade name letters are filled with white. The plate emphasizes the position of the shearing heads and provides good product identity. It is recessed into the plastic case, and framed on either side by whiskits of larger capacity than the previous model.

Simple C-springs serve as hinges for the whiskits. They are set into channels provided in each half of the case. Assembly of the case locks the springs in place. Also, this method eliminates any possibility of beard clippings entering the motor chamber. The thumb-operated switch button is positioned to prevent inadvertent use and the electrical plug fits into the bottom of the molded ivory urea case.

Another product redesigned to improve looks and performance and to reduce production costs is the Union Hardware hockey skate. This skate, manufactured by Union Hardware Co., Torrington, Conn., was redesigned by Francesco Collura, New York.

Runner tubes used in the old model were made from stampings. Since different size skates require different tube lengths, over a dozen different dies were necessary for tube manufacture. Toe cup assemblies were made from two pieces, a cup and a plate. The cup was made by a wrap around process that left an unsightly seam. The plate and cup were fastened together by a rolling operation and then spotwelded. Heel cup assemblies were made in the same manner.

Runners, which are essentially the same in both the old and new skate, were attached to the runner tubes by spotwelding. Toe and heel cup assemblies were also fastened to the tubes in the same manner. The runner stanchion was fastened to the front end of the toe plate by spotwelding using angle plates for reinforcement. Eight parts were used in fabricating the old skate.

Components Are Reduced

In the manufacture of the new model, Fig. 6, the toe and heel cups are each drawn in one piece. The runner is now made from strip stock rolled to desired shape. Tube lengths are determined by the settings of the piercing tools that form the tube end profiles. After forming, the runner tubes are applied to the runners and induction brazed. Next, toe and heel cups are positioned and also induction brazed. Total parts used in the new skate are four.

Advantages of the new skate include higher strength and better looks. Its parts were styled to express the function of the unit. Manufacturing costs were lowered, since fewer components mean fewer forming and assembling operations.

New Process Simplifies Manufacture of Acid

A NEW method of manufacturing sulfuric acid, eilminating seven major items of equipment, has been developed by the Chemical Construction Corp. of New York. The new process plant operates more simply than the conventional contact process and represents an estimated saving of as much as 20 pct of the present capital cost of an erected medium size sulfuric acid plant in the United States.

A commercial-size plant embodying the new design has been in operation since early June of this year at American Cyanamid's works at Hamilton, Ohio. The new process is the result of the development of the following units: (1) A quench converter; (2) bubble absorbers, using evaporative cooling; and (3) a low cost Pease-Anthony venturi sulfuric acid mist eliminator.

As will be seen from the flow diagram, the new sulfuric acid process eliminates the following seven major items of equipment: (a) Drying tower; (b) gas filter; (c) heat exchanger between primary and secondary converter; (d) sulfur trioxide cooler; (e) acid coolers; (f) acid transfer pumps and piping; and (g) dilution system—dilution tank, pumps and cooler stages.

Elimination of the drying tower made it necessary to omit all heat exchange surfaces as potential corrosion hazards. The quench-type converter was developed to solve the problem of interstage cooling. Catalytic oxidation of sulfur dioxide is carried out in four successive stages. Temperature control is effected by admitting atmospheric air between the converter sections.

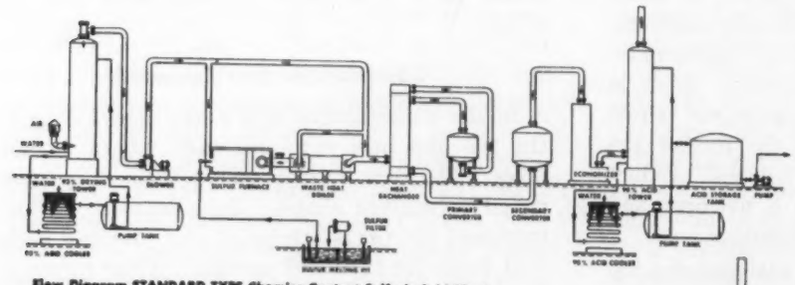
With burner gas containing 12 pct SO_2 by volume, and using a catalyst loading equivalent to that of conventional contact converters, conversion of SO_2 to SO_3 in excess of 99 pct is consistently achieved. For all practical purposes, this conversion represents an equilibrium yield.

In the new absorption system, the entire heat load provided by the sensible heat of the gases leaving the converter, as well as the heat of formation of the sulfuric acid, is removed by latent heat of evaporation of water vapor in a staged absorption system.

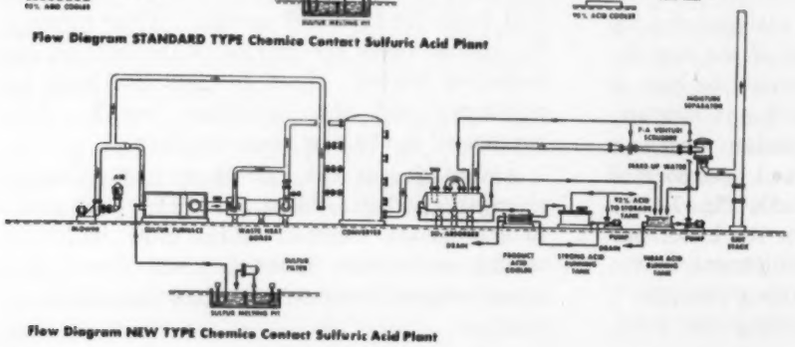
Plants of this design will produce acid up to 95 pct H_2SO_4 strength. It is possible to produce lower concentrations without using additional equipment. Acid transfer is by gravity flow, eliminating the need for transfer pumps.

The venturi scrubber consists essentially of a venturi tube. Mist laden gases leaving the low stage absorber are scrubbed in the throat at a high velocity by means of a recirculated stream of dilute sulfuric acid solution. The high degree of turbulence prevailing in the venturi throat achieves very intimate contact between the gas and scrubbing medium. This results in practically complete capture of the acid mist particles.

Entrained liquid leaving the venturi is removed from the gas stream in a cyclone type mist separator. Exit gases contain only about one-tenth of the acid mist which leaves a conventional contact plant absorption tower. The visible exit from the stack is a plume of steam which quickly disappears.



Flow Diagram STANDARD TYPE Chemico Contact Sulfuric Acid Plant



Flow Diagram NEW TYPE Chemico Contact Sulfuric Acid Plant

FLOW DIAGRAMS of both standard and new type Chemico contact sulfuric acid plants show their basic differences in design. New type plant eliminates seven major items of equipment.

Ultra-fast Mill

HELPS MEET STRIP SHORTAGE

McLouth Steel's new hot rolled strip mill features single conversion of ingot into strip using a 4-high reversing hot mill. The bloomer is one of the fastest breakdown mills in the world.

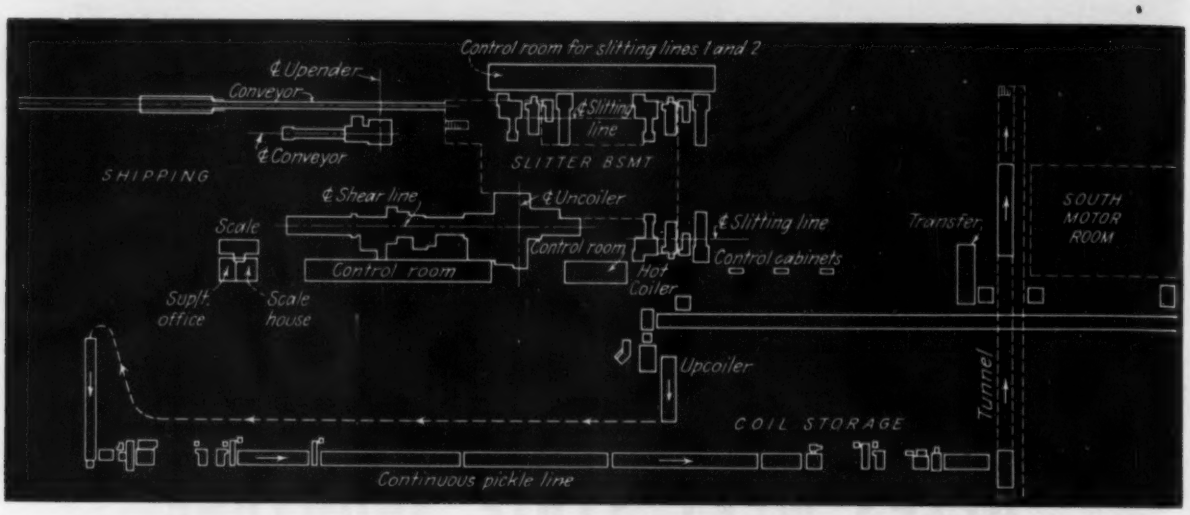
By D. I. BROWN
Feature Editor,
THE IRON AGE

McLOUTH STEEL CORP. is making available 320,000 tons of hot rolled strip annually from its new $23½ million mill located at Trenton, Mich., just outside of Detroit. An unusual feature of the Trenton plant is the fact that after the ingots come from the soaking pit, the finished steel is produced without further reheating, being rolled to plate thickness on a blooming mill and then rolled to strip on a single reversing hot mill stand.

Four electric furnaces using an all scrap charge are currently in operation, rated nominally at 60 tons each but 80 to 95-ton heats of low carbon rimmed and semikilled steel are being tapped. All ingots are big end down type.

Ingots range in size from 14,500 to 24,000 lb. Three size ingots are being used: 26x47 in.; 23x45 in.; and 24x34 in. After the ingots are stripped from the molds, they are charged into the soaking pits and held for proper heating. McLouth has three blocks of Amsler Morton pits which gives them six holes available. The pits measure 11x20 ft and are top fired with hot bunker C fuel oil. The pits use recuperators and have automatic Leeds & Northrup controls.

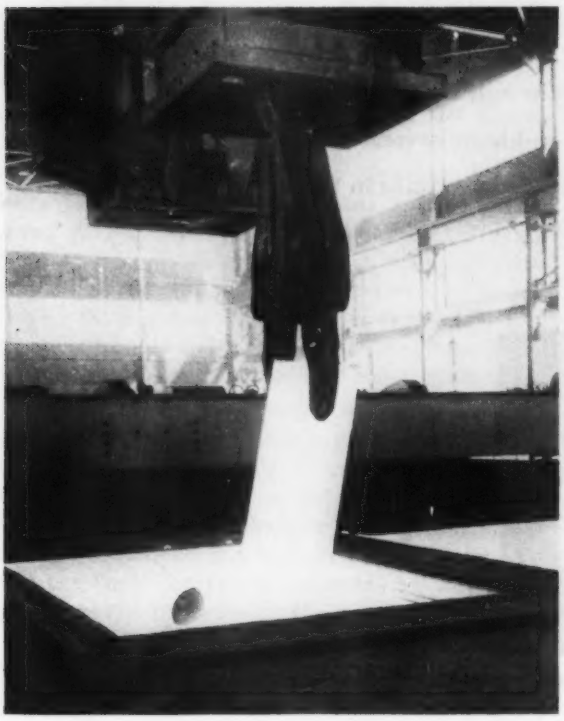
Heated ingots are fed into the 40-in. reversing blooming mill which reduces the ingots to plate either ⅜ or ¾-in. thick. The rolls on this mill have three box passes 4 in., 6 in. and 12 in. and

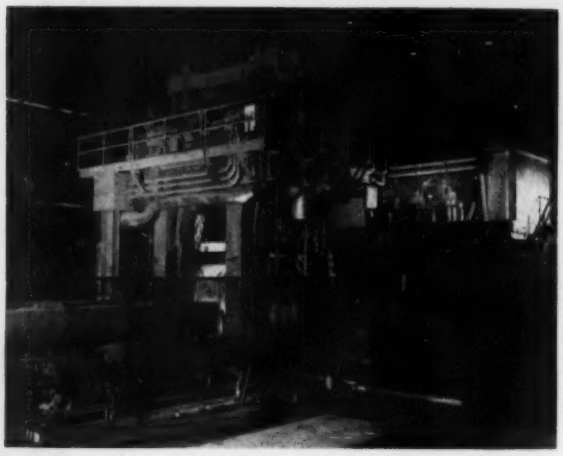


Layout of part of McLouth's new Detroit mill facilitates

Ultra-fast Mill

Continued





Above, fastest reversing blooming mill in the country is located at McLouth. This mill can reverse in less than 1½ sec.

Heated ingots, left, are taken from the pits and rolled direct into hot rolled strip. This single conversion precludes conditioning of the slabs and then reheating for the second rolling on a continuous multi-stand strip mill.

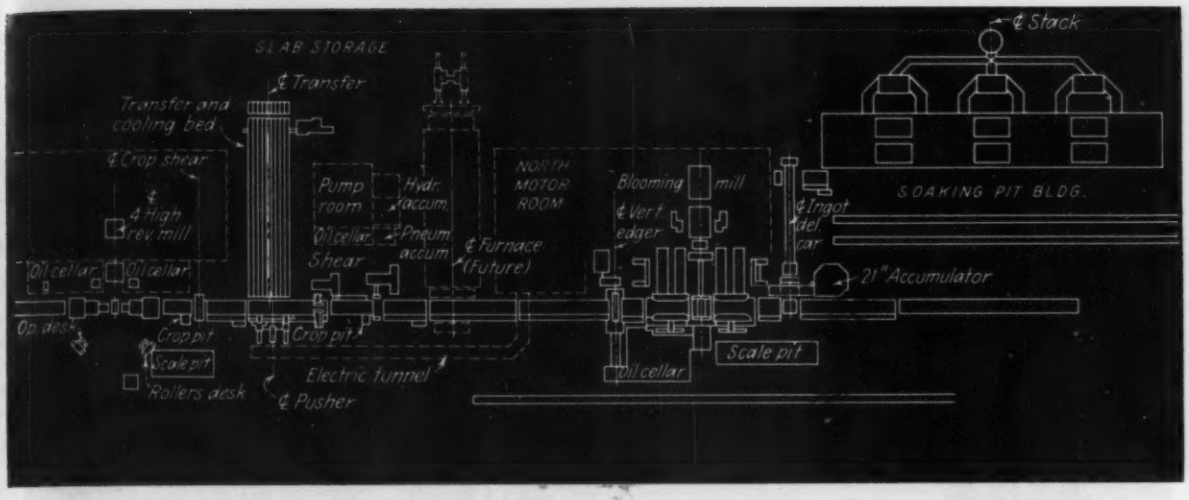
a 56-in. bull head. Rolling width range is from 24 to 40 in.

This Continental bloomer is one of the fastest in operation. It has a twin motor drive and therefore has no pinion stand. Each roll of the bloomer is driven with a 3000 hp motor. The mill is equipped with GE Amplidyne controls and is capable of rolling one ingot every 5 min. The slab comes out of the bloomer as a 4½-in. thick section; it is then conveyed to shears for proper cropping, and is further rolled to the ⅝ to ¾ in. plate section. It is then passed down the table to the 4-high single stand hot mill.

Much of the success of the McLouth mill is due to the ultra-modern electrical controls. This mill can reverse a 10-ton slab in less than 1½ sec. The two 3000 hp motors are each connected directly to the work rolls which produce a maximum torque rating of 2,160,000 lb-ft. Along with the main drive, a 750 hp, 150 to 450 rpm, 600 v GE reversing motor drives the edger. Individual Amplidyne controls permit separate operation of the generator voltage for both the main and edger drives. These controls also permit separate control of the motor fields.

Instead of an induction motor driven flywheel MG set to supply power, three 1750 kw generators driven by a 7400 hp motor equipped with a power factor regulator are used. This type of equipment is employed because of the extra long passes taken on ingots through a mill of this type. The ingots are rolled down into plate between 240 to 250 ft long and the length of run-out table behind the mill is practically as long as that on the delivery side.

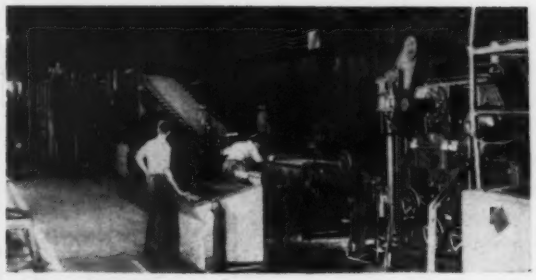
Selective controls at the three stations—bloomer, shears and hot mill—permit maximum



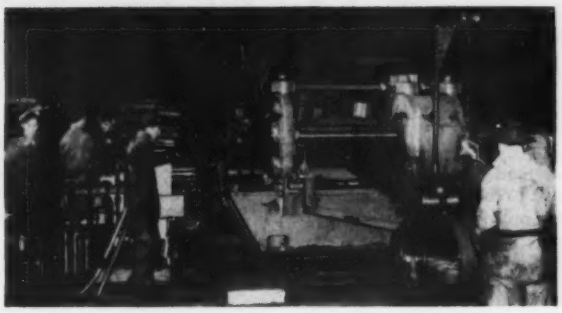
straightline fast production of single converted hot rolled strip.

Delivery side of the 4-high single stand reversing hot mill is shown above. One of the two control boards for this mill is seen at the extreme right.

At the right are the slitting, leveling and recoiling facilities. No cold rolling is done at this plant of McLouth. All the product is shipped as hot rolled strip.



Cascade pickler, above, through which coils are continuously fed. The coil ends are stitched together rather than welded before entering the tanks.



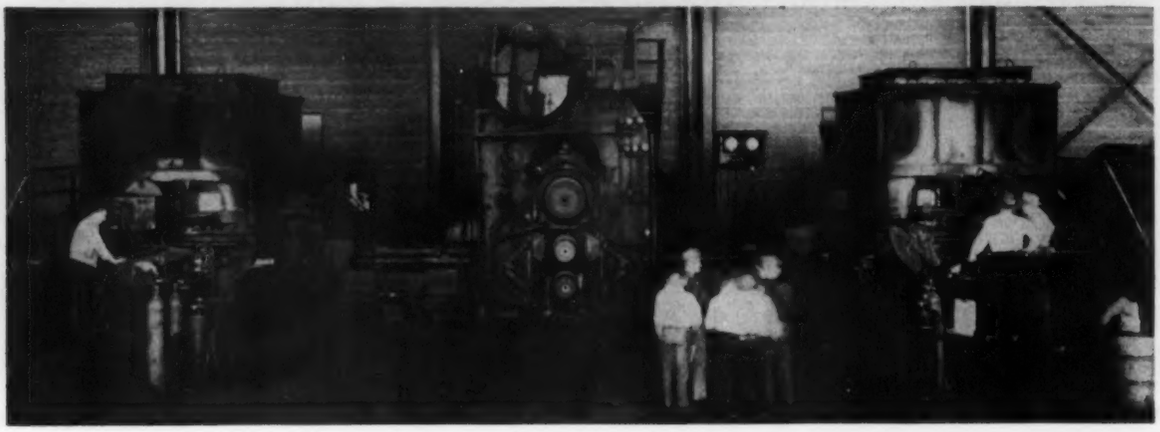
freedom of operation at fast speeds. The roller at the bloomer has control of all five tables. Four of these tables can be run from the hot mill pulpit and three can be run by the shearman. It is possible to produce slabs off the mill at the shear. These slabs are taken away on a slab transfer table set at 90° to the runout table.

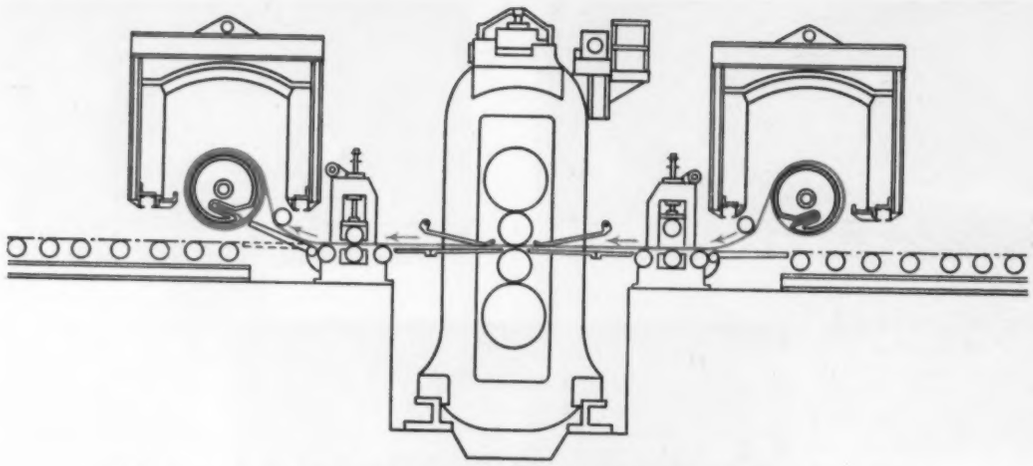
The finished plate from the bloomer delivers at 800 to 900 fpm and is threaded into a Mesta reversing hot mill at 550 fpm. The strip passes under the first hot coiling furnace, enters the 4-high single stand hot mill and is directed up into the other hot coiling furnace. This coiler is enclosed by a furnace shell. The furnace is oil-fired and is held between 1800° and 1900°F.

As the strip enters the hot coiling reel, the reel is manually started and rapidly picks up speed to apply proper tension between the reel and the mill. Pinch rolls are located on either side of the hot mill between the mill and the hot coiling furnaces. The hot mill rolls are water-cooled. A water box fits tight on the roll so that a minimum amount of water reaches the product being rolled.

After the strip passes once through the mill, it is stopped and the pinch roll comes down from a high level position to pinch the product. The mill is then reversed, the pinch roll feeds the strip back into the mill and the other hot coiler receives the strip. The guides are open on the delivery side and closed on the entry side and this action is automatically reversed when the mill changes direction.

Rolling is started at approximately 1850°F and finishing temperatures can be accurately controlled by mill speed, draft and the temperature of the hot coiling furnace. During five passes in which the mill is reversed four times, the $\frac{5}{8}$ or $\frac{3}{4}$-in. thick plate is reduced to a thickness ranging from 0.062 to 0.250 in. as desired.





Five passes are made on this hot reversing mill. The diagram depicts the position of the strip in the mill. When rolling from right to left the roller at the control panel at the left controls the mill. When the strip is reversed, the roller at the other panel takes over.

Drafting of the mill takes place during the interval the strip is out of the mill between passes.

The pinch roll feeds the strip back into the mill at 550 fpm. Actual hot mill speeds range from 800 to 2100 fpm. In front of each pair of pinch rolls is a high pressure water spray. Water is directed on the strip at 1300 psi.

Fast rolling is accomplished by the control system operated by a roller and a mill operator stationed on each side of the mill. Each operator has a complete control panel. The operator controls the direction of rolling, the roller controls the screwdown, and the other functions are alternated between them.

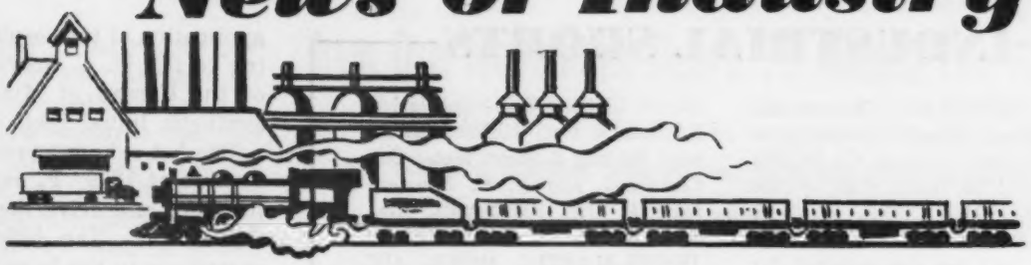
After the directional master switch is thrown, a single button initiates the rolling cycle—starts the coiling reels, drops the lift table, controls the pinch roll and speeds up all the equipment to a predetermined rolling speed. The bottom roll of the pinch rolls is driven and the top roll is an idler.

The temperatures of the coils from end to end are unusually uniform. After the strip is reduced to proper gage it travels down the runout table to the finish coiler. Coils range in weight from 6 to 10 tons.

The hot rolled coils are stitched together at the entry end of the pickling line and fed into a Mesta cascade pickler. Stock running from 20 to 42 in. wide can be handled. The pickler consists of 3 tanks 80 ft long and a water rinse tank. The sulfuric acid in the pickling bath is steam heated to 220°F. After being subjected to the acid bath, the strip is dried and recoiled.

The finishing department at McLouth has three slitters and one straight and cut line. Levelers are used in conjunction with all these operations. Most of the product shipped is in coils although some sheets up to 38 in. wide are being produced. All products are sold as hot rolled sheet and strip as no cold rolling facilities are located at the Trenton plant.

News of Industry



Not Some—But All

Washington — All columbium-bearing stainless steel must be set aside to meet DO-rated orders issued by the Defense Dept. and the Atomic Energy Commission under NPA order M-3 issued late last week and effective Oct. 19. The order also provides that no ferrocolumbium-bearing steel shall be used for any product if ferrocolumbium-tantalum-bearing steel can be substituted.

Neither may be used if a substitute can be found for the latter type. The order permits the completion of orders received and accepted before its issuance.

Manganese Imports Show Rise

New York—Despite the sharp drop in Russian shipments of vital manganese to this country, imports of that metal, chromium and tungsten during the first half of 1950 were well ahead of the 1949 rate, according to the American Iron and Steel Institute. Manganese imports were equal to 80 pct of the 1949 total, with India, Union of South Africa and the Gold Coast making heavy shipments.

British Aluminum Price Rises

London—Britain will pay more for Canadian aluminum since the Canadian dollar was freed and revalued upward. The Ministry of Supply has raised its selling price of virgin aluminum ingots $22.40 to $336.00 a long ton delivered. This is the first revision in the United Kingdom price of aluminum since Sept. 22, 1949—time of pound devaluation.

Higher Steel Wages and Prices Coming

Steel will follow other industries in fifth-round rises . . . Union forcing wage showdown . . . Higher costs, need for expansion forcing higher prices—*By Tom C. Campbell.*

New York—Sometime soon the steel industry will be "Johnny come lately" on wage and price increases. The auto firms started the fifth round, the electrical goods people were forced into it and the aluminum companies tried to catch up with the parade—without trouble. Other industries with no experience as whipping boys have quietly formed part of the backbone of the fifth wage increase.

Steel people have been paying higher prices for equipment, oil, coal, scrap, pig iron, zinc, copper, tin, paper, wood, red tape in the past several months. They will continue to pay even more for these items.

Wages, Prices Going Up

Steel firms need 1950 dollars to: buy replacements, pay stockholders, pay workers—if they are to remain in business for profit that will look like a good risk to investors. Coming expansion will need millions of dollars. It can't all come from stock financing; much must come from profits.

So, steel wages are going up and so are steel prices. The break will probably come soon.

Union Forcing Showdown

Total wage increase including fringe concessions will be 17½¢ to 18¢ an hr. Base rates will go up about 12½¢ to 13¢ an hr with the additional 5¢ taking care of revised holiday payments, job classifications, liberalized vacations and change in pension payments.

Steel firms are being forced into this by circumstance. It is clear that Mr. Truman will not stop Phil Murray in his onward march for steel wage increases. The last steel wage hike was in 1948.

Steel Boost—$8 Ton

Since wage increases are money, and money must come from some place, steel prices will go up promptly after the wage "negotiations" are completed. Steel products will go up $6 to $10 a ton, depending on production costs—with the average close to $8. This will take care of higher costs before the wage increase and will also pay for the wage hikes, the white collar advances and the uneconomical production of war and defense orders.

Coal Seam Fire Gases Drive 500 HP Turbine at Gorgas Mine

Birmingham — Gases produced by coal burning in the seam 150 ft below ground recently powered a gas turbine at the Gorgas mine gasification experiment jointly conducted by the U. S. Bureau of Mines and the Alabama Power Co. near this city, it was reported.

The successful experiment, believed the first of its kind, "indicates a relatively early practical

INDUSTRIAL SHORTS

ORE TERMINAL—The recently purchased 32-acre property of the Turner Terminal Co. in Mobile will be taken over by the TENNESSEE COAL, IRON & RAILROAD CO. on Nov. 30. T.C.I. will use the terminal for receiving imported iron ore, principally Venezuelan, prior to shipping the ore up the Warrior River to its Birmingham steel plants.

MARKING PROCESS — A new method of applying permanent markings and designs on stainless steel has been developed by STAINLESS ORNAMENTALS, INC., Boston. In the process, called Ateen - Ate, blackened stainless steel is treated to produce permanent black designs or markings in contrast to the lustrous surface of stainless.

MIDWESTERN BRANCH—An 11-acre site in Van Wert, Ohio, has been acquired by STERLING ELECTRIC MOTORS, INC., Los Angeles, for the construction of a branch plant to serve the company's midwestern and eastern business. The new facilities will represent an investment close to a half million dollars.

BUCKINGHAM HONORED — Earle Buckingham is the recipient of the Edward P. Connell Award for 1950 of the AMERICAN GEAR MANUFACTURERS ASSN. The award was made in recognition of his many years serving the gearing industry as a teacher, student and author.

NEW HEADQUARTERS—The principal offices of the HOB-SITE PRODUCTS CO., INC., PATERSON, N. J., manufacturers of Keldur, vibration isolation sheet material, has moved to 308 Sussex St., Harrison.

TOOL AGENT—Reltool Corp., Milwaukee, manufacturers of reliable metal cutting tools, has appointed the LYMAN B. WARREN CO. of St. Paul as manufacturer's representatives.

ADDS LICENSEES—Insulation Engineers, Inc., Mobile, Industrial Roofing & Sheet Metal Co., Cleveland, and R. F. Zimmerman & Co., Shreveport, La., have become licensees for the INSUL-MASTIC CORP. OF AMERICA, Pittsburgh, manufacturers of Gilsonite protective coatings.

MOTOR DEALER—Allis-Chalmers Mfg. Co., Milwaukee, has named the SALES ENGINEERING CO., Glens Falls, N. Y., a dealer for their motors and controls in Warren County.

EXPANDING—A $150,000 expansion program for the new ARMCO DRAINAGE & METAL PRODUCTS, INC., manufacturing plant in Washington C. H., Ohio, has been announced. The new facilities will be used principally in the manufacture of certain types of steel buildings.

SELLS DIVISION — H. K. Porter Co., Inc., Pittsburgh, has sold its locomotive business to DAVENPORT-BESLER CORP. (Davenport Locomotive Works), Davenport, Iowa. Davenport-Besler will service all Porter locomotives now in use, and will also build duplicate Porter locomotives, including the Porter fireless locomotives.

CONSULTANTS — A new consulting engineering firm, SKINNER, HARLAN & IRELAND, INC., has been organized at Indianapolis. They will specialize in permanent magnets and soft magnetic materials but will accept consulting projects in any allied field.

GROUP LEADERS—S. M. Goldberg, Pennsylvania Iron & Steel Co., has been elected president of the Pittsburgh Chapter of the INSTITUTE OF SCRAP IRON & STEEL, INC. R. M. Jacobson was named vice-president; Leon J. Coslov, treasurer; and Lou Greenberg, secretary.

application of the results," according to Dr. W. C. Schroeder, chief of the Bureau of Mines office of synthetic liquid fuels.

The hot exhaust gases enter the turbine at 1200° F, expand under pressure and drive the turbine at 20,000 rpm. The 500-hp turbine pumps air to the burning coal.

The present tests began in March 1949 when the seam was fired after small-scale experiments at the Gorgas mine in 1948 had shown encouraging results. Similar experiments are being conducted in England, Belgium and Morocco.

California Fabricators Hear Fairless Hint at Steel Expansion

Says steel "cheaper than dirt" is one reason for the steel shortage.

San Francisco—Plans may be announced in "the very near future" for construction of new capacity at Los Angeles, said Ben Fairless, president of U. S. Steel. He spoke last Friday before a steel-short audience of the California Manufacturers Assn. They heard Mr. Fairless say that steel "literally cheaper than dirt" is one of the less-understood reasons for the shortage.

Steel is so cheap that few can afford to use substitutes and much of the shortage would be obviated if mills charged what the traffic could bear, said Mr. Fairless. Prices have been raised in the past only under the pressure of mounting production costs and the steel industry has advocated the policy of lowest possible prices for the greatest volume of sales.

Steel Cheapest Metal

"The average price of all the finished steel sold by U. S. Steel this year has been just under a nickel a pound, and some finished products sell at less than 3½¢ a pound," he said. "Steel undersells every other metal in the world."

He illustrated U. S. Steel's fight to use all possible finishing capacity in the West by saying that hot-rolled coils are freighted from Eastern plants and steel is purchased from a competitor in Col-

orado, shipped to Geneva for production of coils and thence to the Pittsburgh cold reduction mills.

Mr. Fairless declared that one reason for the shortage was the Korean war and coming controls which caused consumers to "compress into a few months orders which might normally have been spread over a few years."

He attacked the Washington focus of criticism on the steel industry and said that "an accordion-pleated steel plant to contract under the glowering eye of the Dept. of Justice and expand in times of national peril" has not yet been invented. Steel has been blamed by bureaucrats for overexpansion in the depression and denounced for not expanding enough when things got hot, he indicated.

Government Aid for Aluminum Industry Presented at Meeting

New York—A four-point Federal Government program to help industry increase production of critically needed aluminum was outlined by Administrator Jess Larson, of the General Services Administration, before members of the Aluminum Assn. this week.

Government-backed loans by private banks, accelerated amortization, continued stockpiling to cushion the fall in a declining market, and installation of government-owned equipment in private plants were recommended by Mr. Larson.

Mr. Larson's agency, a procurement bureau, is working to standardize buying procedures, specifications and contract and bidding forms to simplify the task of doing business with the government.

Plan $7.5 Million Chemical Plant

Wilmington, Del.—A $7.5 million sodium cyanide plant will be built by E. I. du Pont de Nemours & Co. on a 225-acre site purchased last May. To be located 10 miles north of the business district, the plant will be operated by the Electrochemical Dept.

Iron Ore Movement Nears 79 Million Ton Goal

Fleet has shipped 64,508,869 tons as of Oct. 16 . . . May move added 3 millions tons all-rail to bring total to 82 million tons . . . Some ask if it will be enough—*By Bill Lloyd.*

Cleveland—Movement of 79 million tons of iron ore, this season's goal of the iron ore trade since the first boat locked through the Soo 3 weeks late last spring, appeared to be within reach this week.

As of Oct. 16, the fleet had moved 64,508,869 tons. Great Lakes shippers hope to move 5 million tons in the period of Oct. 16 to Nov. 1, and 8 million tons in the period Nov. 1 to Dec. 1. Weather, wind and dock storage space permitting, shippers hope to move an additional 1.6 million tons in December. This would bring the season total to about 79 million tons.

In addition, 3 million tons of iron ore will probably move all-rail, making a total movement, lake and rail, of 82 million tons.

Railroads Recruit Men

A drive to recruit additional railroad personnel for the iron ore car assembly yards is on at Duluth and Superior, Wis., in an all-out effort to move the highest possible tonnage of iron ore down the lakes before the close of navigation. Men also are needed to assist in iron ore steaming operations.

"There is absolutely NO wasted motion expended in this plant."

Railroad facilities are ready for an unprecedented movement of iron ore. The all-rail movement from Duluth and Superior has already set a record.

Despite the fact that a movement of 82 million tons would be the fifth highest in Great Lakes history, some consumers and other interested parties are asking, "Will it be enough?"

Trade Has Answer

The iron ore trade has an answer, which goes like this. On Sept. 1 stocks on hand at furnace yards and Lake Erie docks totaled 30 million tons. In transit was another 1.7 million tons, and scheduled to move, all-rail, from Sept. 1 to April 1, is an additional 1.8 million tons. Total, 33.5 million tons. Assuming lake movement of 32.2 million tons from Sept. 1 to the close of navigation, consumers will have for the period Sept. 1, 1950, to April 1, 1951, 65,700,000 tons of iron ore.

September consumption of Lake Superior district iron ore by U. S. and Canadian blast furnaces totaled 7,174,745 gross tons, compared with 7,371,365 tons in August, the Lake Superior Iron Ore Assn. reported, bringing cumulative consumption this year to 61,971,360 gross tons compared with 59,805,792 tons a year ago. Iron ore stocks on hand at furnaces and Lake Erie docks totaled 35,715,773 tons Oct. 1, compared with 29,965,663 tons Sept. 1, and 45,356,369 tons on Oct. 1, 1949.

Tight Squeeze Apparent

Assuming consumption at the rate of 7.5 million tons per month for 7 months, total consumption will be somewhere in the vicinity of 52.5 million tons, leaving a total of 13 million gross tons on hand Apr. 1, 1951.

Low point in the past was May

1, 1947, when consumers' stocks totaled 13.5 million tons.

It is readily apparent that there will be a tight squeeze in iron ore next spring, perhaps requiring the shuffling of stocks and trading of tonnage that marked the start of the 1950 season.

To some consumers, this season has brought the shortage of vessel capacity into critical focus. Present trip capacity of Great Lakes bulk fleet is 2,622,000 tons. The seven new carriers now on order will add an estimated 1,250,000 gross tons trip capacity, making a total of 2,747,000 gross tons. At emergency loadings, this fleet could carry 3,160,000 gross tons a trip and at 33 trips a season could move 92 million tons without difficulty.

In addition, M. A. Hanna Co. is expected to announce construction of a new super carrier, larger even than the Sykes, present queen of the lakes, in the near future.

But the bulk of this new capacity will not come in until the 1952 season.

In the meantime, vessel men will probably continue to air their views on the ore storage problem. As one vessel operator put it, this week, "They (the consumers) increase the size of the furnace and they increase the wind (pressure blowing), but they don't increase the dock space. We haul it down to Dec. 1, and hell, they haven't got dock space."

SAVINGS BONDS—Roadblock to Inflation

Defense spending stimulates inflation . . . Cuts down civilian goods output while increasing bidding on scarcer items . . . National Tube Co. has successful drive—*By Bill Packard.*

New York—Inflationary forces are once more on the prowl. Everyone who buys things, whether for government, industry, or the home, will agree that prices are getting higher.

Increased spending for defense, though necessary, is largely to blame. Of course this spending puts more people to work (Personal incomes reached a new high in August, are still rising). But part of our national productivity has been turned to making war goods. Simply stated, this means that there will be more consumer dollars bidding for less consumer goods. Thus inflation is no mere bugaboo; it can be real and cruel if not controlled.

The surest way to prevent inflation is to take some of the money away from people who buy things. This can be done by (1) taxes, (2) wage and price controls, (3) greater productivity and (4) savings. Congress has already voted higher taxes and authorized wage and price controls. Productivity can and is being increased but this must remain a gradual process. But everyone can save. That is why the U. S. Treasury Dept. is now conducting a bond drive.

Free Method of Saving

The purpose of this drive is to increase the number of workers buying U. S. savings bonds through voluntary payroll deductions. This is a free method of saving. It is based on freedom of choice, not on mandatory controls. While fighting inflation, it gives the people a chance to invest in their own future and that of their government. Many metalworking companies are already taking part in this drive and more are jumping on the bandwagon all the time.

The best record marked up so far is by National Tube Co. President John E. Goble was quick to see the advantages to his employees and the nation. He didn't just give permission for the drive; he got behind it and pushed. He made a personal plea to all employees, arranged for publicity and advertising, and set up a detailed organization exploiting communication channels already extending from top to bottom of the company.

When National Tube's bond drive got underway June 23, only 27.9 pct of its employees were buying bonds through payroll deductions. By the time the campaign ended Aug. 11, participation had increased to 80.6 pct of all employees.

Other firms conducting bond drives will be interested in the diary which National Tube published covering details of its successful campaign. The diary lists aims of the drive, gives detailed organization, and a play-by-play account of methods and results at each plant.

Other companies are now shoot-

Promotion of Payroll Savings Plan for U. S. Savings Bonds

The Benefits:

1. Encourage employees to save.
2. Sign them up in a proven method of systematic thrift.
3. Fight inflation.
4. Help employees broaden ownership in the U. S.
5. Establish future markets for industry.
6. Help keep the economy strong.
7. Aid in wise management of the national debt.
8. Decrease pressure on prices and scarce commodities.

The Method:

1. President, or chairman of the board endorses the plan.
2. Campaign chairman is selected.
3. Enlist cooperation of employee groups.
4. Create campaign atmosphere with posters and articles.
5. Conduct person-to-person canvass after indoctrination of canvassers and team captains.
6. Indoctrinate new workers as regular procedure.

Note: Contact your State Director, U. S. Savings Bonds Div., or write to Treasury Dept. Wash., D. C., for promotional and other campaign aids.

ing at National Tube's mark. Some of them may eventually reach or pass it—but they will have to go some. So far this year steel companies alone have added almost 100,000 participating employees. With additional companies joining the parade, this figure will spurt rapidly.

$9 Million Rail Yard Plan Announced by Southern Road

Birmingham—A $9 million railroad yard will be built in the Irondale section of Birmingham by Southern Railway System, Ernest E. Norris, president, has announced.

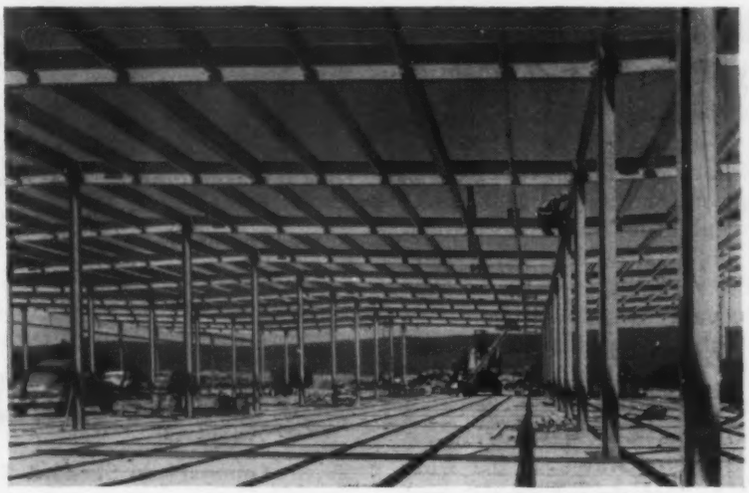
The 75 miles of track will cover 500 acres and offer modern locomotive and repair facilities. The new pushbutton - retarder type yard will be the third of its kind in the country and one of the largest in the South. When the new yard is completed, Southern will abandon its present yard and offer approximately 100 acres for sale as industrial sites.

Republic Forms Speakers Bureau

Cleveland—Top level officers of Republic Steel Corp. departments will mount the speakers' platform as part of the steel industry's invigorated campaign to enlighten the public against unjustified attacks against steel. Republic invites program chairmen of fraternal, civic, or social clubs, and schools to secure qualified speakers through its recently created Speakers' Bureau. Requests may be made to the Public Relations Dept., Republic Steel Corp., Cleveland.

British Steel Breaks Record

London—British steel production for the first three quarters of 1950 reached an all-time high of 12,117,000 long tons, or 530,000 tons over the comparable 1949 period. September's output was a record at an annual rate of 16,964,000 tons. Pig iron production showed a slight gain in September —9,712,000 tons annually against 9,477,000 tons in August and 9,634,000 tons a year ago.



Scranton vs. Hard Times

Scranton, Pa.—The postwar pall of imminent hard times in this town where coal had been overthrown as an industrial king was incongruous to the general prosperity of the nation. Scranton saw itself as being in the deepest shadow of the economic eight ball. Its business leaders determined to catch up and provide jobs for the 30,000 men severed from work by the failing of the coal mines.

It has turned out to be a multi-million dollar industrial business project in which Scranton is becoming a landlord to firms lured here by the offer of a new plant on a 15-year rental basis. First came the Scranton Plan which built plants for industry and pointed out the availability of labor. Sixteen new industries entered the area and another 16, privately-financed, followed. More than 7000 men on bloated relief roles were put to work—but it was not yet nearly enough.

The Chamber of Commerce embarked on the current LIFE project (Lackawanna Industrial Fund Enterprise). Its name is appropriate for it is reviving a blighted area. Its goal is $10 million in industrial buildings within the next 5 years and 20,000 new jobs.

An example of the buildings being put up by the Anthracite Bridge Co., Scranton, is one prepared for occupancy last month. Covering more than 89,000 sq ft of plant area, the building is 180 ft by 460 ft, with a height of 16 ft at the eaves, 15 ft in the valleys of a zig-zag roof. Its framework is steel H-beams, wide flange beams, and J & L Junior Beams, an exclusive J & L product for roof purlins of which more than 1100 tons went into 16 Scranton buildings.

A concrete floor is reinforced with road mesh. Walls are made of concrete block. The office front is embellished with brick veneer and continuous steel sash allows wide window area. Roofs of precast concrete slabs are lapped and covered with fiberglass insulation topped with tar and slag coating.

Scranton provides the building at reasonable rental and business just brings its furniture.

Firms renting LIFE buildings on the 15-year plan will have an option to buy if they find themselves able to pay for the building sooner. On the other hand, they will own the building at the end of 15 years regardless. LIFE strives in this way to assure Scranton that companies will not move out because they would be sacrificing the equity that accrues through rentals.

Brainard Steel Co. to Lease Navy's Warco Plant for Expansion

Sharon, Pa. — Brainard Steel Co., Warren, O., wholly-owned subsidiary of Sharon Steel Corp., is leasing the government-owned Warco plant in Warren for expansion and improvement of existing facilities. The move also will accommodate overflow operations now being carried on at Sharon Steel's Farrel, Pa., plant.

The $7 million plant is being leased from the Navy. During the war it was operated as the Warren City Manufacturing Co., and landing barges, diesel engine crankcases, and other heavy naval products were produced there. Later it was acquired by Graham Paige Motor Corp., and was leased in 1946 to the Federal Machine & Welder Co.

The new facility will give Brainard 386,000 additional sq ft of floor space. The Sharon subsidiary produces cold-rolled strip steel, welded tubing, steel strapping, and a specialty line for the building trade.

Australia Orders Budd Diesels

Philadelphia — Commonwealth Railways of Australia has placed the first foreign order for the Budd Co.'s self-propelled, all-stainless steel car, H. A. Coward, Budd vice-president, has announced. Three of the rail diesel units will be made for the Australian order.

Industry Workers Share In Good Business, Report Agencies

Washington—Business is good and both workers and corporations are making more money than ever, according to latest reports by three agencies—the Securities & Exchange Commission, the Federal Trade Commission, and the Office of Business Economics of the Commerce Dept.

Manufacturers set a new sales record of $43.5 billion during second quarter 1950, earning $3.2 billion which the SEC and FTC reports is a third more than the first quarter and a half more than second quarter 1949.

Costs and expenses increased only 11 pct, say these agencies, thus increasing profits after taxes from 6.2¢ per sales dollar to 7.4¢. Current assets rose by $4.9 billion while current liabilities were increasing by only $2.6 billion.

Personal income rate stood at $217 billion at the end of the second quarter (reaching a new high rate of $223 billion by the end of August) according to OBE. Expanding employment and a longer work week in manufacturing industries resulted in a payroll increase of $1.8 billion in August alone.

Steel Needs Liberal Depreciation to Expand

Youngstown Sheet & Tube lists $8 to $9 million improvements for Youngstown works . . . Chairman says that tentative $100 million can be spent under more liberal depreciation.

Youngstown, Ohio—Frank Purnell, chairman of Youngstown Sheet & Tube Co., says his company has tentative plans to spend $100 million for expansion and improvements, but it must have more liberal depreciation allowances before it can be done.

At a press conference incident to a plant open house during observance of the company's 50th anniversary celebration, Mr. Purnell said the government must allow steel companies to accelerate depreciation of plants and equipment for tax purposes if the industry is to spend large sums for increase of capacity.

Company directors have authorized $30 million for improvements, and $14 million of this has been spent this year at Youngstown and in the Chicago area. Of the remainder, $8 million to $9 million will be spent for improvements in the Youngstown district.

These improvements will include changes in the electricweld pipe mill at Mosier, completion of work on a new blooming mill at Campbell Works, improvements to by-product coke plants, and new cranes (being moved from Indiana Harbor) and larger ladles at the Campbell openhearth plant, whose capacity will be increased by 75,000 to 100,000 tons a year. With these improvements and the four new openhearths being built at Indiana Harbor, company capacity will go to 4,500,000 tons next year —a boost of 350,000 tons.

"It's a sort of safety-valve. Sometimes our high production gets out of control."

Higher Wages, Prices

Mr. Purnell made these other points: (1) an increase in steel wages will mean higher steel prices; (2) the main hope of the steel industry lies in concentration of low-grade iron ore supplies, although the Venezuela and Labrador discoveries will stretch high-grade supplies for many years; (3) there will probably be enough steel for defense, plus large quantities for civilian goods. The open house attracted nearly 12,000 visitors.

Congress Bill Bars Private Power Firm from Added Resources

Bill provides that only U. S. can exploit Niagara River resources.

Buffalo—The Federal Government is playing an old game with the water power industry—that of the camel dispossessing the Arab from his tent after getting a sufficient foothold on his property. It has been glutting itself with vast hydroelectric projects under the banner of public ownership and is now reeling with a sense of power that is leading to an encroachment on the domain of private enterprise.

A. T. O'Neill, vice-president of the Niagara Mohawk Power Corp. and president of its subsidiary, the Niagara Falls Power Co., brought this to the attention of the 98th fall meeting of the Electrochemical Society. He said that a bill now in Congress forbids his firm from exploiting additional power resources granted in a treaty with Canada ratified Aug. 9, 1950. This is happening while power for industry is a pressing need.

The treaty will permit ultimate additional power capacity on the U. S. side of the Niagara River of over 1 million kw but the Congressional bill intends to exclude any private firm, he said. The bill provides that only an agency of the Federal Government be allowed to develop the waters.

He declared that, if his firm developed the added resources, it would be paying about $23 million annually in taxes and that the difference between the estimated cost of electric energy by a public and private development "is primarily attributable to the taxes."

Army Bars Overtime, Extra-Pay; Other Services May Adopt Ruling

Washington—The army has served notice that its contracts during the current mobilization effort will be based on industry working normal work-weeks and shifts and that overtime and extra-pay shifts will be frowned upon except in emergency situations.

Recent amendments to the joint procurement regulations authorize approval of premium compensation by procuring agencies on an individual basis and only when (1) the item is essential to present emergency, (2) production must be speeded up to meet an emergency and (3) no other facilities can meet the time schedule of the contract.

Even in these cases, premium pay must be held to a minimum. If a plant holds defense contracts from two or more of the military services, premium pay will not be approved unless all the services agree. While the new rules apply to the army only, it is understood that they will be extended to cover all services.

NPA Order to Give Fair Shake to Warehouses

Order will direct mills to sell to warehouses certain portion of steel left over from priority orders . . . Will apply to individual products as well as overall total supply.

Washington—Slowly but surely the output of steel is being parceled out under government order in the hope of maintaining equitable distribution among consumers.

An order is being drafted by the National Production Authority which will direct producers to sell a certain portion of steel left over from priority orders to independent warehousemen. Purpose of the order is primarily to assure a supply of steel to small users who are dependent upon the warehouses, NPA officials say.

"Oh, come along, your machine is down this way—that's just a soda pop vendor—"

In its completed form, the order will direct steel mills to set aside a percentage of production for independent warehousemen. The mills allotment to each customer will be based on shipments to such buyers during the first 6 months of 1950, as well.

No specific percentages had been approved last week, but officials say that they will apply to individual products as well as the overall total supply.

Another part of the order will set limits or ceilings on the amount of rated orders the warehousemen must accept. No specific percentages had been adopted last week but officials said they definitely would apply to types of products as well as overall inventories.

Warehousemen in Favor

Officials said that representatives of independent warehouses who attended a conference called by NPA last week had unanimously approved the outline and purpose of the proposed order.

This planning to give a fair shake to steel warehouses comes hard on the heels of a complaint lodged by Walter S. Doxsey, president of the American Steel Warehouse Assn., Inc. (The IRON AGE, Oct. 12, 1950, p. 184.) He said that warehouse stocks had shrunk 40 pct in the past 12 months and high demand plus smaller shipments are speeding the drop to menace small firm production.

Italy's Finsider Steel Group Aims for Three Integrated Plants

Genoa, Italy—Crux of the postwar reconstruction and expansion of Finsider, largest Italian producer of steel, is the concentration of its main steel production in three integrated plants at Cornigliano, Genoa; Bagnoli, Naples; and Piombino, Tuscany, said Oscar Sinigaglia, president, at a recent interview here.

At Bagnoli, slated for a 400,000 metric ton annual capacity, the Thomas works will start production in early 1951, while continuous rolling mills for billets, rods and wire rods will begin operations about June '50.

At Cornigliano, Finsider is reassembling recovered plants and machinery looted by the Germans. Completion is expected this year. Now under construction in America, a semi-continuous hot strip mill will be installed in 1951. The plant will have an annual capacity of 600,000 metric tons.

When asked the possible effect of the Schuman plan to pool steel industries on Italian steel, Mr. Sinigaglia said that the Finsider plan had similar aims but added that the Italian steel industry needed governmental protection.

Allis-Chalmers Sponsors Forum

Niagara Falls, N. Y.—Installation and maintenance of processing and power machinery is the subject of a forum at the Hotel Niagara here Oct. 26 and 27, sponsored by Allis-Chalmers Mfg.

Physicists Meet in Wisconsin

Madison, Wis.—A "Conference on Applications of X-Ray Spectroscopy to Solid-State Problems" was attended by physicists from America and Europe at the University of Wisconsin on Oct. 23 to 25.

Coal Bids for Fuel Dominance With Coal-Burning Gas Turbine

Will test locomotive power plant as white hope against diesels.

Dunkirk, N. Y.—The coal industry's ambition to recapture dominance of coal as a railroad fuel was heightened with shipment of a coal-burning locomotive gas turbine to the American Locomotive Co. plant here for testing. It was built by Allis-Chalmers Mfg. Co., of Milwaukee, for the Locomotive Development Committee of Bituminous Coal Research, Inc., as a to-be-proven challenge to diesels.

Carrying crushing equipment to pulverize the coal, the locomotives will burn the same lump coal used by steam locomotives. The coal will be burned in a combustor unit together with air from a compressor driven by the turbine. Hot gases to drive the turbine will be produced while special equipment will remove most of the coal

STEEL PRODUCTION (Ingots and Steel for Castings)

As Reported to the American Iron & Steel Institute

Period	OPEN HEARTH		BESSEMER		ELECTRIC		TOTAL		Calculated Weekly Production (Net Tons)	Number of Weeks in Month
	Net Tons	Percent of Capacity	Net Tons	Percent of Capacity	Net Tons	Percent of Capacity	Net Tons	Percent of Capacity		
January, 1950	7,131,519	96.5	379,252	80.6	419,601	71.9	7,930,372	93.9	1,790,152	4.43
February	6,142,178	92.0	255,565	60.2	395,502	75.0	6,793,245	89.1	1,698,311	4.00
March	6,747,690	91.3	265,726	56.5	473,630	81.1	7,487,036	88.7	1,690,076	4.43
1st Quarter	20,021,377	93.3	900,543	65.9	1,288,733	76.0	22,210,653	90.6	1,727,111	12.86
April	7,314,733	102.2	407,909	89.5	490,030	86.7	8,212,672	100.4	1,914,376	4.29
May	7,597,837	102.8	437,006	92.9	517,044	88.6	8,551,887	101.3	1,930,449	4.43
June	7,218,570	100.9	406,944	89.3	506,001	89.5	8,131,515	99.4	1,895,458	4.29
2nd Quarter	22,131,140	102.0	1,251,859	90.6	1,513,075	88.2	24,896,074	100.4	1,913,611	13.01
1st 6 months	42,152,517	97.7	2,152,402	78.3	2,801,808	82.2	47,106,727	95.5	1,820,902	25.87
July	7,220,214	96.9	380,317	79.8	470,763	78.4	8,071,294	94.7	1,826,085	4.42
*August	7,315,215	98.0	405,118	84.8	509,984	84.7	8,230,317	96.3	1,857,859	4.43
†September	7,264,264	100.7	409,216	88.7	526,540	90.6	8,200,020	99.3	1,915,893	4.28
†3rd Quarter	21,799,693	98.5	1,194,651	84.4	1,507,287	84.5	24,501,631	96.8	1,866,080	13.13
†9 months	63,952,210	98.0	3,347,053	80.4	4,309,095	83.0	71,608,358	95.9	1,836,112	39.00
January, 1949	7,289,865	101.2	408,552	92.6	498,973	96.1	8,197,390	100.4	1,850,427	4.43
February	6,635,785	102.0	379,698	95.3	478,479	102.0	7,493,942	101.6	1,873,485	4.00
March	7,476,139	103.7	430,178	97.5	495,481	95.4	8,401,798	102.9	1,896,568	4.43
1st Quarter	21,401,769	102.3	1,218,426	95.2	1,472,933	97.7	24,093,128	101.6	1,873,494	12.86
April	7,017,712	100.5	404,095	94.6	374,358	74.4	7,796,165	98.6	1,817,288	4.29
May	6,891,293	95.6	400,741	90.9	306,956	59.1	7,598,990	93.0	1,715,348	4.43
June	5,956,402	85.4	349,198	81.8	199,058	39.6	6,504,656	82.2	1,516,237	4.29
2nd Quarter	19,865,407	93.9	1,154,032	89.1	880,372	57.7	21,899,811	91.3	1,683,306	13.01
1st 6 months	41,267,176	98.1	2,372,458	92.1	2,353,305	77.6	45,992,939	96.4	1,777,848	25.87
July	5,309,060	73.8	300,236	68.2	175,535	33.9	5,784,831	71.0	1,308,785	4.42
August	6,103,326	84.7	355,335	80.6	264,110	50.9	6,722,771	82.3	1,517,556	4.43
September	5,994,100	86.1	350,262	82.2	253,553	50.5	6,597,935	83.6	1,541,574	4.28
3rd Quarter	17,406,486	81.5	1,005,853	76.9	693,198	45.0	19,105,537	78.9	1,455,106	13.13
9 months	58,673,662	92.5	3,378,311	87.0	3,046,503	66.6	65,098,476	90.5	1,669,192	39.00
October	814,618	11.3	.....	.....	113,729	21.9	928,347	11.4	209,559	4.43
November	3,806,870	54.6	172,270	40.3	243,989	48.5	4,223,129	53.4	984,412	4.29
December	6,953,653	96.7	396,075	90.0	378,496	73.0	7,728,224	94.8	1,748,467	4.42
4th Quarter	11,575,141	54.2	568,345	43.4	736,214	47.8	12,879,700	53.2	980,190	13.14
2nd 6 months	28,981,627	67.8	1,574,198	60.2	1,429,412	46.4	31,985,237	66.0	1,217,558	26.27
Total	70,248,803	82.8	3,946,656	76.0	3,782,717	61.9	77,978,176	81.1	1,495,554	52.14

Note—The percentages of capacity operated in the first 6 months are calculated on weekly capacities of 1,668,287 net tons open hearth, 106,195 net tons Bessemer and 131,786 net tons electric ingots and steel for castings, total 1,906,268 net tons; based on annual capacities as of January 1, 1950, as follows: Open hearth 86,984,490 net tons, Bessemer 5,537,000 net tons, Electric 6,871,310 net tons, total 99,392,800 net tons. Beginning July 1, 1950, the percentages of capacity operated are calculated on weekly capacities of 1,685,059 net tons open hearth, 107,806 net tons Bessemer and 135,856 net tons electric ingots and steel for castings, total 1,928,721 net tons; based on annual capacities as of July 1, 1950, as follows: Open hearth 87,858,990 net tons, Bessemer 5,621,000 net tons, Electric 7,083,510 net tons, total 100,563,500 net tons.

* Revised.

† Preliminary figures, subject to revision.

Note—The percentages of capacity operated are calculated on weekly capacities of 1,626,717 net tons open hearth, 99,559 net tons Bessemer and 117,240 net tons electric ingots and steel for castings, total 1,843,516 net tons; based on annual capacities as of January 1, 1949, as follows: Open hearth 84,617,040 net tons, Bessemer 5,191,000 net tons, Electric 6,112,890 net tons, total 96,120,930 net tons.

ash from the gas stream before it hits the turbine blading. The turbine will drive dc generators to power the main motors in an arrangement similar to the electric drive of the diesel locomotive.

Decline of Steam Units

With introduction of the more efficient diesel, steam locomotives hit the skids to such a point that not one major producer in the U. S. is turning out steam models. Coal producers felt the thorn in their side twisted deeper with every withdrawal of a coal-using locomotive from the tracks—and so did some railroads deriving revenue from hauling coal.

Striving for an answer to a worsening situation, a group of railroads and coal producers financed design and construction of two gas turbine locomotives through BCR. (Another power plant is being built by Elliott Co., Jeanette, Pa.) Although proponents of the coal-burning gas turbine may admit that it will not match the diesel in efficiency, they point to cheaper fuel, lower operating costs and maintenance costs. Not all experts are convinced that the coal-burning gas turbine will prove practical. They note the possible accelerated blade erosion by hard fly-ash particles and high idling losses.

GE Earnings Hit Record High

Schenectady—A record 67 pct increase in net earnings during the first 9 months of 1950 over the same period last year was announced this week by Charles E. Wilson, president, General Electric Co.

Net sales billed totaled $1,354,483,215, 14 pct over the same period of 1949. Net earnings amounted to $112,919,454 compared with $67,612,879 earned in last year's period. Earnings totaled 8.4¢ and 5.7¢, respectively, on each dollar of sales.

A dividend of 60¢ per share of common stock was paid Oct. 25 for the third quarter of 1950, raising total common stock payments for the year to $1.80.

N.Y. Crude Iron Production Shows Sharp Rise in Past Decade

Albany—Rapid expansion of state mining industries during the past decade has made New York the fourth largest producer of crude iron, 8 million long tons in 1948, and source of two-thirds of the titanium minerals consumed by the U. S., according to a new free booklet, "The Mineral Industries of New York State," issued this week by the State Department of Commerce.

Improved mining and processing methods and depletion of other sources of iron ore have made New York increasingly important as an ore producer, and the possibility that the state may become the site of steel producing plants in addition to existing large developments in the Buffalo area is suggested.

Wright Exhibits New Plane Engines

New York—Propellers for aircraft won't be thrown out the window by development of jets but will be used with the new turbo-prop engines to provide power for both military and commercial planes in the future, said Roy T. Hurley, president of the Wright Aeronautical Corp., at an exhibition in the Waldorf-Astoria Hotel here last week.

Four of the new powerplants shown were gas turbines to be built in the U. S. under the terms of a contract signed by Wright and the Armstrong-Siddeley Ltd., London. The new Wright "Compound" engine, combining reciprocating and gas turbine power, was also exhibited and announced as the engine for the super Lockheed Constellation transport.

Postpone Laboratory Dedication

Minneapolis—Dedication of the nearly completed U. S. Bureau of Mines lignite laboratory at Grand Forks, N. D., has been postponed to spring, 1951, according to Paul Zinner, regional director. Red River Valley floods last spring caused construction delays.

Celler Cancels Hearings On Aluminum Stockpiling Programs

Washington—Rep. Celler, D., N. Y., chairman of a House monopoly investigating subcommittee, this week canceled scheduled public hearings on aluminum supplies.

Earlier (THE IRON AGE, Oct. 19, page 67) Celler said he wanted to know why U. S. aluminum producers had not been more cooperative in aiding the government's stockpiling programs. But this week he said stockpiling agreements reached by industry and government representatives led him to believe that public hearings would not be necessary.

Celler said he would continue to keep an eye on the industry to see if stockpiling goals were being met and also to see that any additional facilities were being allocated "properly" among domestic producers.

Representatives of the munitions board and the NSRB declined to comment on terms of the "agreements" reached by the government and industry.

RR Readies Ohio River Span

Cairo, Ill.—Ten thousand tons of fabricated steel will go into the construction of the new Illinois Central R.R. bridge over the Ohio River. The first 518-ft span was rolled into place this week by the American Bridge Co.

The new bridge is being erected span by span, alongside the old one. The 3900-ft single-track bridge will consist of 12 spans, two of 518 ft, four of 400 ft and six of 197 ft.

Alabama Studies Plant Capacity

Birmingham — Alabama's war production potential will be surveyed in a questionnaire being mailed to 300 metalworking plants by the State Planning Board. The information will answer questions of some 60 prime war contractors who have made inquiries on the capacity of metalworkers and manufacturers to take sub-contracts.

Construction Feels Labor Squeeze

New York—The construction industry since the Korean war has felt the squeeze of a tightening labor supply and renewed demands for higher pay, discloses a National Constructors Assn. survey of its membership, consisting of firms engineering and building oil refineries, steel mills, and chemical plants.

Tightness in some crafts, particularly in the Midwest, permits their members to be selective in favoring projects which provide overtime, said C. B. Bronson, secretary-treasurer of the association. Wage hikes ranging 5¢ to 25¢ have been granted but no national pattern has evolved.

West Coast Gets New Pipe Plant

Philadelphia—Contract for design and construction of a continuous cast iron pipe annealing furnace for the new plant of the U. S. Pipe & Foundry Co. has been awarded R-S Products Corp. of this city. The new plant will be located in the San Francisco Bay area and will make centrifugally cast pressure pipe for the Pacific Coast trade.

Canadian Production Off in July

Toronto—Canadian production of primary iron and steel shapes totaled 346,000 net tons for July compared with 369,783 tons for June and 259,882 tons in July 1949. Shipments for sale of primary iron and steel shapes amounted to 221,792 net tons in July against June shipments of 248,322 tons and July 1949 shipments of 182,658 tons.

Steep Rock Ore Shipments High

Steep Rock Lake, Ont.—Iron ore shipments from Steep Rock Iron Mines passed the million ton mark Oct. 13, according to M. S. Fotheringham, president. With approximately a month left before the Great Lakes navigation season ends, the company expects to surpass its all-time record of 1,206,000 tons set in 1947.

NPA Order Extends DO Rating To Containers for Defense Program

Washington—The National Production Authority this week moved to end the container shortage bothering military suppliers by authorizing the Dept. of Defense and Atomic Energy Commission to assign to their suppliers of petroleum and food the right to apply DO ratings to secure the drums, cans and other containers and packaging required for delivery. (THE IRON AGE, Oct. 19, 1950, p. 15.)

The action took the form of an interpretation to NPA Reg. 2 which does not apply to food and petroleum. The ratings may be used only to secure the minimum quantities of containers, or packaging required to fill specific defense orders.

For example, an Army order is placed for 100 drums of insecticide a petroleum product not covered by the priorities regulation, therefore, a packaging problem exists.

An Army procurement official may then assign to the supplier the right to apply a DO rating to secure the drums needed for the delivery of the 100 drums of insecticide.

Name Franklin Institute Officers

Philadelphia — Dr. Nicol H. Smith has been appointed executive director of The Franklin Institute Laboratories for Research and Development and the following were made associate directors at the same time: Dr. C. T. Chase, for chemical engineering and physics; L. P. Tabor, electronics and instruments; and J. J. Boericke, contracts division.

Copper, Aluminum Alloy Use Up

Boston—Increased demand for copper and aluminum based alloys was reported at the annual meeting of the Non-Ferrous Founders' Society. Tonnage for 1950 is 30 to 35 pct above 1949 production. The society elected J. D. Zaiser, Ampco Metals, Inc., president.

• *News of Industry* •

STEEL CONSTRUCTION NEWS

Fabricated steel awards this week included the following:

3500 Tons, San Francisco, Calif., for construction of 12-story building at Univ. of Calif. Medical Center, 3rd Ave. and Parnassus Ave., San Francisco, to be used as education-teaching hospital, through Clinton Construction Co., San Francisco, to Moore Drydock Co., Oakland.

1700 Tons, Philadelphia, Pa., new building for Lankenau Hospital, to Belmont Iron Works, Philadelphia.

500 Tons, Philadelphia, addition to building at 9th and Race Streets for Bell Telephone Co. of Pennsylvania, to Bethlehem Steel Corp., Bethlehem, Pa.

470 Tons, Philadelphia, building for Gulf Oil Co., to Bethlehem Steel Corp., Bethlehem, Pa.

360 Tons, Camden, N. J., New Jersey State Highway Commission, highway bridge on Route 151, Section 1B, F. A. Canuso & Son, low bidder.

300 Tons, Minnesota, Bridge No. 6676 to Illinois Steel Bridge Co., Jacksonville, Ill.

275 Tons, Sayreville, N. J., office and welfare building for National Lead Co., United Engineers & Constructors, Inc., general contractors, to Bethlehem Steel Corp., Bethlehem, Pa.

256 Tons, Providence, R. I., rotary construction including steel stringer bridges and parking area, reconstruction of Gaspee St. and Pershing Sq. Campanelli and Cardi Construction Co., Hillsgrove, R. I., low bidder.

175 Tons, Wilmington, Del., addition to C-O building for Diamond State Telephone Co., to Bethlehem Steel Corp., Bethlehem, Pa.

165 Tons, Philadelphia, plant addition for SKF Industries, Inc., Leonard Shaffer, Philadelphia, general contractor, to Bethlehem Steel Corp., Bethlehem, Pa.

150 Tons, Tioga County, Pa., Pennsylvania Dept. of Highways, bridge, Irving N. Loomis, general contractor.

150 Tons, Bryn Mawr, Pa., nurses' home at Bryn Mawr Hospital, Joseph Farrell, Philadelphia, low bidder.

132 Tons, Henderson County, Tennessee, bridge; Tennessee Highway Department, to Virginia Bridge Company, Birmingham, Ala.

120 Tons, Darien, Conn., reinforced concrete pavement and single span rolled beam bridge. Relocation of U. S. Route 1, Brunale Construction Co., Southington, Conn., low bidder.

116 Tons, Lauderdale-Crockett Counties, Tennessee, bridge; Tennessee Highway Department, to Virginia Bridge Co., Birmingham, Ala.

Fabricated steel inquiries this week included the following:

1000 Tons, Bromfield, Colo., bridge. Bids due Oct. 27.

557 Tons, Indiana County, Pa., Pennsylvania Dept. of Highways, bridge. Bids due Nov. 10.

360 Tons, Cumberland County, Pa., Pennsylvania Dept. of Highways, bridge. Bids due Nov. 10.

175 Tons, Greenville, Del., elementary school building. Bids due Nov. 2.

200 Tons, Jefferson County, Colo., R bridge. Bids due Oct. 24.

174 Tons, Boston, construction of two concrete and granite masonry piles and fender system for channel span of a proposed fixed bridge, Boston Harbor.

170 Tons, Johnson County, Iowa, bridge.

146 **Tons,** Northumberland and Montour Counties, Pa., Pennsylvania Dept. of Highways, bridge. Bids due Nov. 10.

104 **Tons,** New Haven, Conn., 54 foot span rolled I beam bridge and construction of drainage wells, relocation of U. S. Route 1, E. T. Nettleton, New Haven, district engineer. (Federal Aid Project.)

Reinforcing bar awards this week included the following:

1250 **Tons,** San Francisco, Calif., for construction of 12-story building at Univ. of Calif. Medical Center, 3rd Ave. and Parnassus Ave., San Francisco, by The Regents, Univ. of Calif., for use as a teaching hospital, through Clinton Construction Co., San Francisco, to Judson - Pacific - Murphy Corp., Emeryville, Calif.

935 **Tons,** Chicago, Sears, Roebuck Store, through James Stewart Corp., contractors, to Bethlehem Steel Corp.

507 **Tons,** Tracy, Calif., by Bureau of Reclamation for construction San Luis Wasteway & Holding Reservoir Dike, located near Volta, Calif., under Spec. No. 3057, through Western Contracting Corp., Newman, Calif., to Bethlehem Pacific Coast Steel Co., San Francisco.

175 **Tons,** Eureka, Calif., by City of Eureka for construction Murray St., Hill St. and McCullens Ave. outfall sewers and treatment plants, through Hoagland-Findlay Eng. Co., Long Beach, to Truscon Steel Co.

150 **Tons,** Palatka, Fla., paper mill; Hudson Pulp & Paper Co., to Ceco Steel Products Co., Birmingham, Ala.

Reinforcing bar inquiries this week included the following:

625 **Tons,** Chicago, biology building, Argonne National Lab., S. N. Nielsen Co., Chicago, low bidder.

270 **Tons,** Chicago, medical center, staff spt. bldg., J. J. Duffy, Chicago, low bidder.

140 **Tons,** Chicago, residence hall for men, medical center, Simpson Construction Co., Chicago, low bidder.

Other Mills Follow J & L In Tying Extras to Zinc Prices

Pittsburgh—Jones & Laughlin Steel Corp. started something when it tied the price of galvanized pipe to the fluctuations of the zinc market. National Tube Co. has announced a new spelter extra system which differs only in detail from J & L's plan.

A different spelter extra is applicable for each 1¢ change in the price of prime western zinc at East St. Louis on the shipment date. American Steel & Wire Co., as of Oct 21, adopted spelter extras based on the price of prime western zinc f.o.b. East St. Louis.

National Supply Co. and Wheeling Steel Corp. have also changed prices but are still studying the question of tying galvanizing extras with the price of zinc.

Immediate changes by National Tube, Wheeling Steel, and National Supply are: 2½ points lower on ½ and ¾ in.; 2 points lower on 1 and 1¼ in.; and 1½ points lower on 1½ in. and larger. These amount to an average increase of $3.80 per ton.

• *News of Industry* •

Dates to Remember

Oct. 26-28—Audio Engineering Society, audio fair, Hotel New Yorker, New York. Society's address is P. O. Box F, Oceanside, N. Y.

Oct. 29-Nov. 1 — National Tool & Die Manufacturers Assn., Annual Convention, Hotel Statler, Cleveland. Association headquarters are in the Union Commerce Bldg., Cleveland.

Nov. 2-3—Industrial Management Society, Research Div., annual time, motion and management clinic, Sheraton Hotel, Chicago. Society headquarters are at 35 E. Wacker Drive, Chicago.

Nov. 2-3—Society of Automotive Engineers, diesel engine meeting, Hotel Knickerbocker, Chicago. Society headquarters are at 29 W. 39th St., New York.

Nov. 9-10—Society of Automotive Engineers, fuels and lubricants meeting, Mayo Hotel, Tulsa, Okla. Society headquarters are at 29 W. 39th St., New York.

Nov. 14-16—American Institute of Electrical Engineers, technical conference on electrical engineering in the machine tool industry, Sheraton Hotel, Worcester. Institute headquarters are at 33 W. 39th St., New York.

Nov. 26-Dec. 1—American Society of Mechanical Engineers, annual meeting, Hotel Statler, New York. Society headquarters are at 29 W. 39th St., New York.

Nov. 27-Dec. 2—American Society of Mechanical Engineers, national power show, Grand Central Palace, New York. Society headquarters are at 29 W. 39th St., New York.

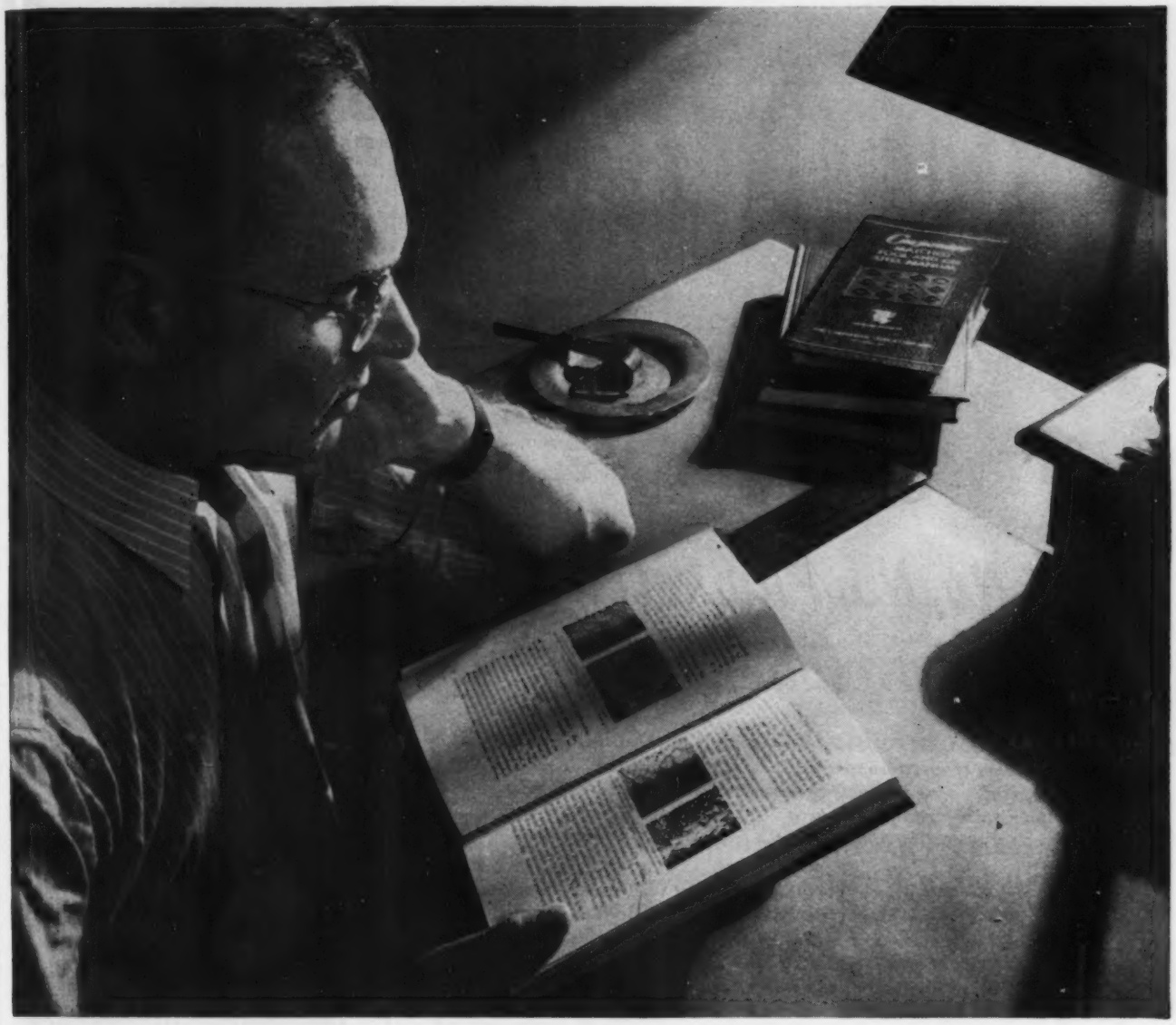
Dec. 3-6—American Institute of Chemical Engineers, annual meeting, Neil House, Columbus, Ohio. Institute headquarters are at 120 E. 41st St., New York.

Dec. 7-9—American Institute of Mining & Metallurgical Engineers, Electric Furnace Steel Committee, annual conference, Hotel William Penn, Pittsburgh. Institute headquarters are at 29 W. 39th St., New York.

Republic Sells Iron Co. Stock

Cleveland—Republic Steel Corp. has sold privately 100,940 shares of Cleveland-Cliffs Iron Co. common stock. A Republic spokesman said the proceeds would be used to develop the various iron ore projects in which the company is engaged.

Cleveland-Cliffs stock was sold at a high of $20 on the Mid-west Exchange during the past few days, indicating that the 100,940 shares had a gross value of $2,018,800.



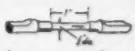
The "Alloy" You Won't Find in a Metallurgical Handbook

Even if you think all tool steels of "similar" analysis are alike, consider this: Here's a "plus alloy" that never appears in a type analysis—yet it has *proved* its ability to raise output per grind, reduce hardening hazards, and make dies less troublesome!

The men in the Carpenter Mills, where the "alloy" originated years ago, can explain it better than we. They will tell you it's an alloy made of patience, and care, and years of skill spent working with quality controls and modern equipment. It's the extra time invested in painstaking tests to insure uniformity. It's the *personal* attention lavished on every bar of Carpenter Matched Tool and Die Steel.

And it has paid off a hundredfold for tool steel users like yourself!

It's yours at no extra cost—let it work for you. Try a Carpenter Matched Tool and Die Steel for only one or two jobs. We'll let your results prove the difference. The Carpenter Steel Co., 121 W. Bern St., Reading, Pa.



Torsion Impact Test—One of many Carpenter quality controls that packs greater safety and dependability into each bar you use. The knowledge derived from this test enables you to heat treat the steel with greater confidence that it will give you the best combination of hardness and toughness.

Begin *now* to get more production from present equipment . . . ask your Carpenter representative for this new 189-page Carpenter Matched Tool and Die Steel Manual.

Export Department: Woolworth Bldg., New York 7, N.Y.—"CARSTEELCO"

Carpenter

MATCHED TOOL & DIE STEELS

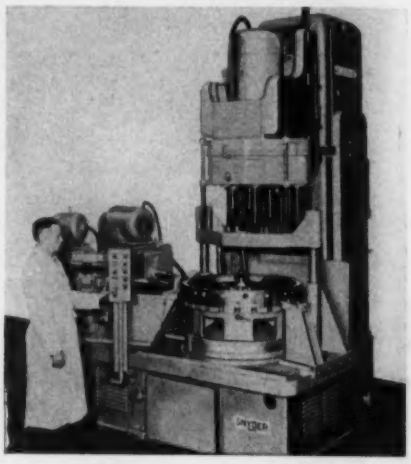
—containing the one "alloy" that has no price tag!

To get started now, just call Carpenter. Warehouse stocks in principal cities throughout the country.

NEW PRODUCTION IDEAS

Continued from Page 38

Geneva index. Clamping is manual but the work cycle is automatic. Tools are 1 5/16 in. high speed steel, working at 116 rpm, with in-



feed of 0.016 ipr. The vertical, 11-spindle head is powered by a 20 hp motor. Stroke is 16 in. *Snyder Tool & Engineering Co.*

For more data insert No. 27 on postcard, p. 35.

Truck Crane

Lifts, booms and swings either simultaneously or independently.

A new 12½-ton truck-mounted industrial yard crane has a swing speed to 6.4 rpm and travels at truck speeds. The heavy-duty car-

rier is engineered for crane service, with heavy wide-flanged I-beam frames providing a solid crane base. Equalizing beam-type suspension and a locking third differential make possible heavy, off-the-road work. An auxiliary transmission provides ten forward and

DEMPSTER DUMPSTER SYSTEM

SERVING COST-MINDED MANAGEMENT FROM COAST TO COAST

. . . handling bulk materials of every description at phenomenal savings

Photos show the three simple stages of servicing a container. The Dempster-Dumpster, operated from hydraulic controls by driver in the cab, picks up each container and hauls it to point of disposition where it may be dumped or set down intact.

ALCOA

—recognized across the nation

. . . Aluminum Company of America, well known for sound management, uses the Dempster-Dumpster System

Aluminum Company of America is among the hundreds of cost minded manufacturers, both large and small, using the Dempster-Dumpster System of bulk materials handling . . . the system recognized across the nation for its efficiency and ability to reduce costs.

In the Dempster-Dumpster System one truck-mounted Dempster-Dumpster eliminates up to 10 conventional trucks because one Dempster-Dumpster services a great number of Dempster-Dumpster containers. These detachable containers, ranging in size up to 12 cu. yds., carry pay-loads equal to and greater than conventional truck bodies. They are built in a wide variety of designs best suited to handle any type of materials, be they bulky, light or heavy . . . solids or liquids . . . trash or rubbish. Containers are spotted at necessary materials accumulation points inside and outside buildings. The Dempster-Dumpster services one pre-loaded container after another.

In addition to saving thousands of dollars annually in tires, gas, oil, and truck maintenance, the Dempster-Dumpster System eliminates standing idle time by truck and crews . . . eliminates handling and re-handling of materials . . . and increases efficiency and cleanliness. It will pay you to investigate the Dempster-Dumpster System now! A product of Dempster Brothers, Inc.

One Dempster-Dumpster Services All Containers. . . All Designs. . . All Sizes

DEMPSTER BROTHERS, 380 Dempster Building, Knoxville 17, Tennessee

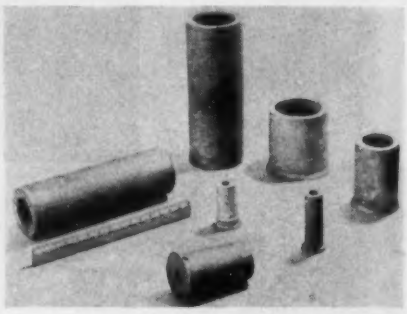
two reverse speeds. Standard power unit is a six-cylinder gasoline engine that develops 105 hp at 3200 rpm. The upper works is enclosed in a weatherproof, inside bolted cab. *Wayne Crane Div., American Steel Dredge Co.*

For more data insert No. 28 on postcard, p. 35.

Centrifugal Castings

Available up to 12 in. OD x 13 in. long.

Large sizes of centrifugally cast liners, sleeves, rolls, rings, bushing,



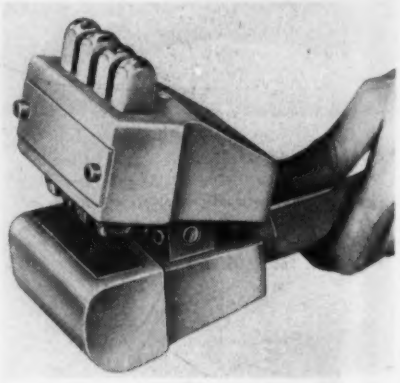
etc., in bronze alloys, rough or machined, are now available. *American Non-Gran Bronze Co.*

For more data insert No. 29 on postcard, p. 35.

Steel Sheet Marker

Top swivels upward to slip over pieces to be marked.

A new marking device for stamping steel sheet, strip and other flat thin metals is made from aluminum



for lightness in weight and ease in handling. This Model JG-1 stamping tool is made with a holder section for any size or number of characters. By finger pressure the top swivels upward so the holder can be slipped over the pieces to be marked. A lightweight hammer

A MODERN WIRE MILL Serving Southern California

A completely modern, integrated wire mill is now in operation at Bethlehem Pacific's Los Angeles plant. Steelmaking furnaces, high-speed rolling equipment, drawing blocks, and patenting and annealing furnaces are all coordinated at this plant to turn out high-quality wire in the range of grades and sizes that are called for by industries of the Southwest.

Consisting largely of bright, annealed, and spring grades, Bethlehem Pacific wire is used by manufacturers of an almost unlimited list of products that reach both consumer and industrial markets.

The completion of this mill marks another milestone in the enlargement and improvement program under way at the various Bethlehem Pacific plants. It is part of the company's long-range plan to supply more steel and steel products for this fast-expanding region.

BETHLEHEM PACIFIC COAST STEEL CORPORATION

Steelmaking Plants: Los Angeles, South San Francisco, Seattle
Structural Fabricating Works: Los Angeles, South San Francisco, Alameda, Seattle
Bolt and Nut Plants: Los Angeles, South San Francisco, Seattle

BETHLEHEM STEEL

BETHLEHEM PACIFIC

Continued

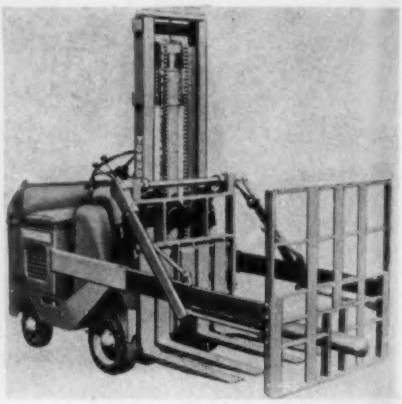
blow on each stamp completes the marking operation. *M. E. Cunningham Co.*

For more data insert No. 30 on postcard, p. 35.

Coiled Wire Unloader

Double duty unit combines ram and hydraulic unloader accessories.

The two accessories are furnished on a Model LT-40 lift truck, together with a special set of fully tapered and polished works. Forks and ram are used interchangeably. With the forks a load of spools of



wire is lifted directly on the forks from a take-it-or-leave-it pallet, and with the ram, a group of coils in vertical position is picked up by inserting the ram through the open center of the coils. In depositing the load, the unloader is used to push the coils off the forks or the ram. *Towmotor Corp.*

For more data insert No. 31 on postcard, p. 35.

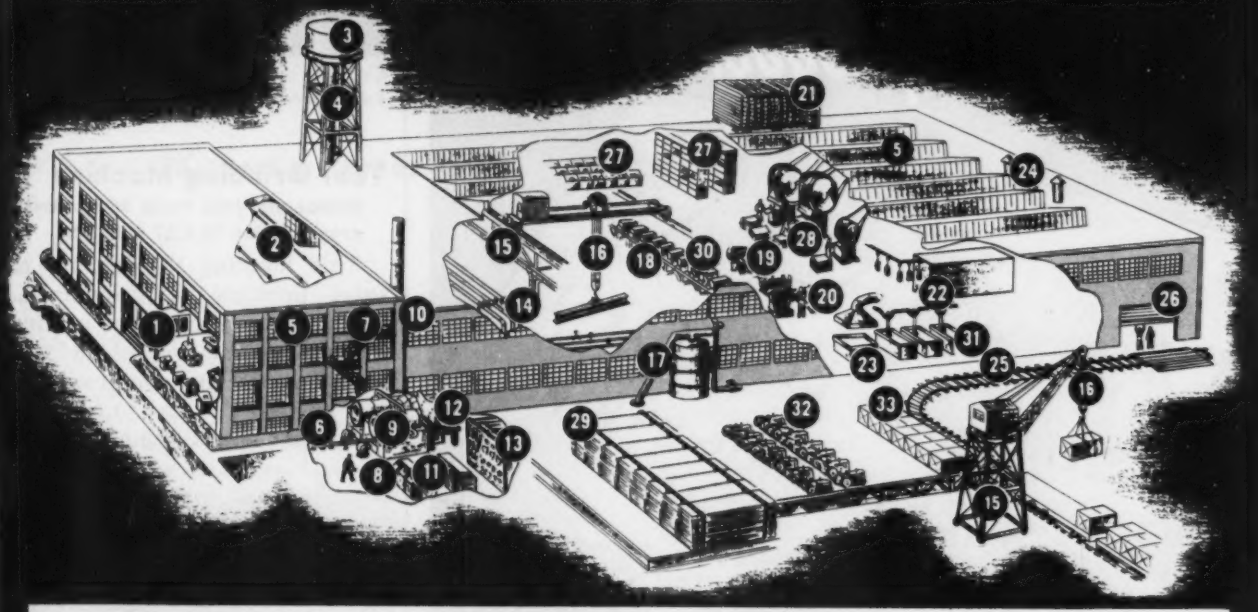
Live Center

Equipped with Timken roller bearings; uses changeable, tapered inserts.

Equipped with No. 3 precision Timken roller bearings, a new live center features a simple adjusting screw that permits adjustment

for wear. Double cone, single cup type bearings provide bearing surface for both thrust and radial loads. The live center in Nos. 1, 2, 3, 4 and 5 Morse taper, is available

LOST: $6,000,000,000 FROM RUST!



MAINTENANCE USES

1. Products display
2. Sprinkler system
3. Water tank
   Exterior
   Interior
4. Riser and Tower
5. Window sash
6. Piping
7. Fire escape
8. Boiler room maintenance
9. Boiler setting
10. Gutters and down spouts
    Exterior
    Interior
11. Stored metal
12. Various tanks and air reservoirs
    Exterior
    Interior
13. Electrical control panel, bus bars, battery terminals, conduit
14. Valves, bonnets, stems
15. Structural steel
16. Chains and cables
17. Piping—Insulation on piping
18. Conveyors
19. Templates, dies, and gauges in storage
20. Stored machinery
21. Cooling tower
22. Drying ovens
23. Acid tank and ventilator hood
24. Ventilators
25. Railroad'track, rail joints
26. Steel overhead doors

PRODUCTION USES

27. Parts in storage
28. Metal stampings
29. Stock metal in storage
30. Production parts
31. Dipping production items
32. Finished production items
33. Export shipments

HOW MUCH IS YOUR PLANT CONTRIBUTING?

This year—every year, rust takes its tremendous toll in industrial plants throughout the country. In dozens of places throughout your building, from water tower to boiler room, in structural metal as well as during the fabrication of metal products, rust is silently at work, destroying valuable equipment, lowering profits, increasing maintenance costs.

Regardless of the cause of corrosion in your plant, or the extent of protection necessary, there is a correct NO-OX-ID rust preventive designed specifically to give you positive protection—chemically, by stopping corrosive action, mechanically by sealing off corrosive elements.

Check your plant for the typically vulnerable areas illustrated. Let the Dearborn sales engineer make a complete Plant Inspection Survey and then recommend the correct NO-OX-ID.

There is a correct Dearborn NO-OX-ID to combat and protect against rust wherever it threatens.

DEARBORN CHEMICAL COMPANY
General Offices: 310 S. Michigan Ave. • Chicago 4, Illinois

Dearborn
Reg. U. S. Pat. Off.

THE ORIGINAL RUST PREVENTIVE

NO-OX-ID
IRON + OX = RUST

Dearborn Chemical Company
310 S. Michigan Ave., Dept. IA
Chicago 4, Illinois

Gentlemen:
Please send me a copy of your introduction to NO-OX-ID rust preventives.

Name.....

Company.....

Address.....

City.....*Zone*.....*State*.....

Continued

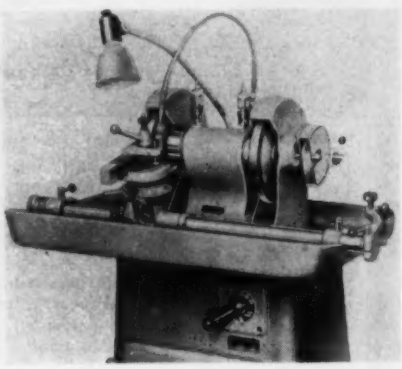
in both general purpose and heavy duty types. *Arrow Tool & Reamer Co.*

For more data insert No. 32 on postcard, p. 35.

Tool Grinding Machine

Grinds and laps tools of smallest cross section to 1.57 x 2.36 in.

This machine through its patented principle of grinding and lapping is claimed to eliminate guess work and dispense with the need for checking and rechecking tool angles. The tool to be ground is held in a special compound holder



that slides on a bar parallel to the wheel spindle so that, after grinding each surface of the tool, it is only necessary to move the holder to the lapping wheel for a final finishing job. Wheels are changed rapidly and easily for high speed steel or hard metal tools. *Hauser Machine Tool Corp.*

For more data insert No. 33 on postcard, p. 35.

Indicating Fuse Cutout

100-amp heavy duty fuse cutout for high-capacity distribution feeders.

A new heavy-duty indicating fuse cutout for use on high-capacity distribution feeders or wherever high interrupting capacity is wanted, has an interrupting rating of 5000 rms-amp at 5200 v and 8000 rms-amp at 2500 v. The housing is wet-process porcelain, glazed inside and out, and has a hanger support cemented into the back. Contact clips and terminals are silver plated for high conductivity. *General Electric Co.*

For more data insert No. 34 on postcard, p. 35.

Resume your reading on Page 39

Briefs and Bulletins

can't be done—A machine tool manufacturer reports that it is impossible for them to fill DO orders in the time required. Last April and May they scheduled production of milling machines for the tank program—6 to 8 months ahead. Now they are getting DO orders asking for delivery on milling machines before the end of the year. They claim that they just cannot readjust their schedules to accomplish what is asked of them.

peeved— Alloy producers are chagrined at the government over the nickel shortage. They feel that the government showed poor judgement in withdrawing nickel from the market for stockpiling. It should have been done early this year when nickel was plentiful and alloy demand was loose, they contend. Producers are having a difficult time scraping up enough nickel to fill urgent orders for armor plate.

desperation point—The plight of small civilian consumers caught in a defense program is becoming more desperate—reaching the point in one company where after orders booked are balanced against capacity of mills to produce, anything left over is parcelled out to salesmen who can show that they have consumers more desperate than others. The tonnages seldom amount to much.

Dutch plate to Texas—Kane Pipe Corp., Galveston, Texas, will receive 10,000 metric tons of steel plate every 8 to 10 weeks from Royal Dutch Iron and Steelworks, Ijmuiden, Holland, under an arrangement announced by G. B. Wilson of the Wm. H. Muller & Co., agents for the Dutch firm. The plate will be used to manufacture 30 in. expanded welded process pipe for Tennessee Gas Transmission Co.

price boost—Price increases ranging from $5.00 to $12.00 per net ton were put into effect by Superior Steel Corp. on Oct. 17. Hikes included: hot-rolled carbon strip, $5.00 per ton; hot-rolled alloy strip, $7.00; cold-rolled alloy strip, $12.00; and spring steel, $7.00.

price advances—Westinghouse Electric Corp. announced price increases ranging from $10.00 to $35.00 on seven television receivers and increases of $1.00 to $2.00 on three table radio models.

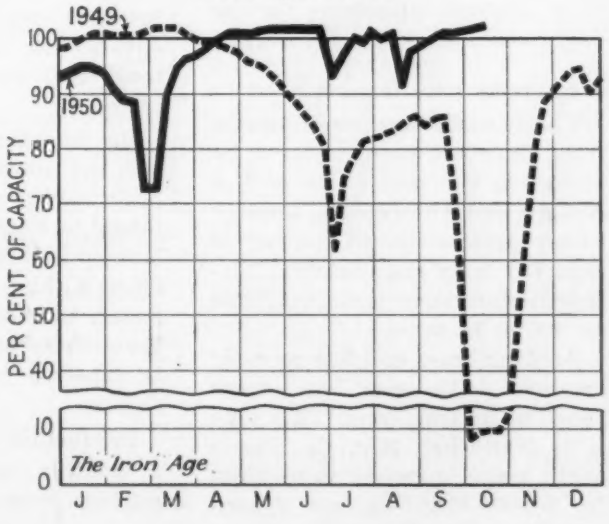
Atlantic prices—Increases in steel prices and a 20 pct extra for hot-dipped galvanizing, effective Oct. 23, were announced this week by Atlantic Steel Co. Special sections, bar size channel and tees are $5.00 per 100 lb base; merchant bar and bar size angles, and new billet deformed reinforcing bar are $4.00; hot rolled strip and cooperage hoops are $3.80.

c-f bars—Columbia Steel & Shafting Co. and Wyckoff Steel Co. have adjusted extras on drawn and ground bars upward $5.00 per ton. Drawn and polished, turn ground and polished bar extras were increased $10.00 per ton.

lagging behind — Although mills are desperate to clean up orders by the end of 1950, it does not seem as if they can make it. On hot-rolled bars alone, some producers are lagging 60 days on delivery.

copper base steels — Effective Oct. 10, American Cladmetals Co., Carnegie, Pa., increased prices of copper base stainless clad steels as much as 39c per lb.

Steel Operations**



District Operating Rates—Per Cent of Capacity**

Week of	Pittsburgh	Chicago	Youngstown	Philadelphia	Cleveland	Buffalo	Wheeling	South	Detroit	West	Ohio River	St. Louis	East	Aggregate
Oct. 15	102.0*	102.5	95.5*	94.0	95.5*	104.0	101.0	104.0	106.5*	103.0	89.0	95.0	115.0	102.0
Oct. 22	101.0	104.0	95.0	95.0	94.0	104.0	101.0	106.0	103.0	104.0	90.0	95.0	111.0	102.5

* Revised.
** Steel operations for the first half of 1950 are based on annual capacity of 99,392,800 net tons. Beginning July 1, 1950, operations are based on new annual capacity of 100,563,500 net tons.

Nonferrous Metals OUTLOOK

Market Activities

NPA may limit civilian use of aluminum . . . Port strike hits Chilean copper exports . . . Mattatuck grants 10¢ wage boost . . . Lead position not clear . . . Scrap market in confusion.

New York—The possibility exists that the National Production Authority may eliminate certain nonessential civilian uses of aluminum. The curtailment, if imposed, will probably affect things like bicycles, toys, sporting goods, and similar products. The aluminum controls, now being drafted, will probably be ready in about 2 weeks.

This follows shortly after a statement made by Jess Larson, administrator of General Service Administration, to the Aluminum Assn. Mr. Larson stated that the government would continue to stockpile this metal and that priority for the purchases would be given to domestic producers.

The proposed investigation of reports that Aluminum Co. of Canada would be the sole supplier of U. S. stockpile aluminum for the next 3 years has been abandoned.

Port Strike Hits Imports

Vitally needed copper shipments from Chile are being delayed by strikes in the port cities of San Antonio and Antofagasta, through which practically all copper is exported from that country. Detailed information is not available as we go to press.

Another brass mill has recently granted a 10¢ per hour wage boost to its employees. This time it is Mattatuck Mfg. Co. Previously, wage increases were given by Scovill Mfg. Co. and American Brass Co. Meanwhile, Chase Brass Co. is continuing its negotiations with the union.

There is mixed feeling in the lead industry this week. With quotations on the Commodity Exchange about 1½¢ per lb higher than the regular market price and consumers apparently wanting more than they can obtain, there is a possibility of an increase in the lead price.

It has also been pointed out that an extra burden is being thrown onto lead because of the shortages of other metals. One such case is the paint industry where lead oxide pigments are replacing some titantium oxide pigments because of the shortage. Another example is a firm which installed lead-lined tanks as a substitute for the stainless steel tanks that would have been preferred.

On the other hand, the NPA is still not alarmed about lead supplies and the government does not intend to stockpile this metal. The battery industry, which consumes about a third of all the lead produced, has had a record month in September but a seasonal decline is expected to come along very shortly.

Production figures indicate that a monthly lead consumption of slightly over 100,000 tons will cause no pinch in supplies. Total consumption last month was about 120,000 tons but the big user was replacement batteries and a slump is expected here.

Scrap Market Confused

The scrap trade is continuing with high activity and uncertainty this week. Members of the industry are seriously concerned about what is going to happen when things start down again. If the price balloon should burst a lot of people are going to be seriously hurt. Meanwhile, the price of soft scrap lead advanced ¾¢ to a range of 13¾¢ to 14¢ per lb and battery plates rose ¼¢ to a range of 8¼¢ to 8½¢ per lb.

The output of American Smelting & Refining Co.'s Rosita zinc smelter in Mexico has been seriously reduced as a result of a strike is an adjoining coal mine. The smelter normally produces about 4800 tons of zinc a month and at this time of short supply a lengthy strike there would have a serious effect on supply.

NONFERROUS METALS PRICES

	Oct. 18	Oct. 19	Oct. 20	Oct. 21	Oct. 23	Oct. 24
Copper, electro, Conn.	24.50	24.50	24.50	24.50	24.50	24.50
Copper, Lake, delivered	24.625	24.625	24.625	24.625	24.625	24.625
Tin, Straits, New York	$1.1325	$1.13	$1.14	.....	$1.16	*$1.1775
Zinc, East St. Louis	17.50	17.50	17.50	17.50	17.50	17.50
Lead, St. Louis	15.80	15.80	15.80	15.80	15.80	15.80

Note: Quotations are going prices.
*Tentative.

MILL PRODUCTS

Aluminum

(Base prices, cents per pound, base 30,000 lb, f.o.b. shipping point, freight allowed)

Flat Sheet: 0.188 in., 2S, 3S, 30.1¢; 4S, 61S-O, 32¢; 52S, 34.1¢; 24S-O, 24S-OAL, 32.9¢; 75S-O, 75S-OAL, 39.9¢; 0.081 in., 2S, 3S, 31.2¢; 4S, 61S-O, 33.5¢; 52S, 35.6¢; 24S-O, 24S-OAL, 34.1¢; 75S-O, 75S-OAL, 41.8¢; 0.032 in., 2S, 3S, 32.9¢; 4S, 61S-O, 37.1¢; 52S, 39.8¢; 24S-O, 24S-OAL, 41.7¢; 75S-O, 75S-OAL, 52.2¢.

Plate: ¼ in. and heavier: 2S, 3S-F, 28.3¢; 4S-F, 30.2¢; 52S-F, 31.8¢; 61S-O, 30.8¢; 24S-O, 24S-OAL, 32.4¢; 75S-O, 75S-OAL, 38.8¢.

Extruded Solid Shapes: Shape factors 1 to 5, 37.5¢ to 74.5¢; 12 to 14, 38.2¢ to 89¢; 24 to 26, 41.1¢ to $1.22; 36 to 38, 46.9¢ to $1.83.

Rod, Rolled: 1.5 to 4.5 in., 2S-F, 3S-F, 37.5¢ to 38.5¢; cold-finished, 0.375 to 3 in., 2S-F, 3S-F, 40.5¢ to 35¢.

Screw Machine Stock: Rounds, 11S-T3, ⅛ to 11/32 in., 53.5¢ to 42¢; ⅜ to 1½ in., 41.5¢ to 39¢; 1 9/16 to 3 in., 38.5¢ to 36¢; 17S-T4 lower by 1.5¢ per lb. Base 5000 lb.

Drawn Wire: Coiled, 0.051 to 0.374 in., 2S, 39.5¢ to 29¢; 52S, 48¢ to 35¢; 56S, 51¢ to 42¢; 17S-T4, 54¢ to 37.5¢; 61S-T4, 48.5¢ to 37¢; 75S-T6, 84¢ to 67.5¢.

Extruded Tubing, Rounds: 63S-T5, OD in in.: 1¼ to 2, 37¢ to 54¢; 2 to 4, 33.5¢ to 45.5¢; 4 to 6, 34¢ to 41.5¢; 6 to 9, 34.5¢ to 43.5¢.

Roofing Sheet, Flat: 0.019 in. x 28 in. per sheet, 72 in., $1.142; 96 in., $1.522; 120 in., $1.902; 144 in., $2.284. Gage 0.024 in. x 28 in., 72 in., $1.379; 96 in., $1.839; 120 in., $2.299; 144 in., $2.759. Coiled Sheet: 0.019 in. x 28 in., 28.2¢ per lb; 0.024 in. x 28 in., 26.9¢ per lb.

Magnesium

Does not reflect latest increase.

(Cents per lb, f.o.b. mill, freight allowed)

Sheet and Plate: M-O, FS-O, ¼ in. 58¢ to 60¢; 3/16 in. 60¢ to 62¢; ⅛ in. 62¢ to 64¢; B & S gage 10, 63¢ to 65¢; 12, 67¢ to 69¢; 14, 73¢ to 78¢; 16, 80¢ to 85¢; 18, 88¢ to 93¢; 20, $1.00 to $1.05; 22, $1.22-$1.31; 24, $1.62-$1.75. Specification grade higher. Base: 30,000 lb.

Extruded Round Rod: M, FS, diam in., ¼ in. to 0.311, 66¢; ½ in. to ¾, 50¢; 1¼ to 1.749, 47¢; 2½ to 5 in., 45¢. Other alloys higher. Base: Up to ¾ in., diam, 10,000 lb; ⅞ in. to 1¾ in., 20,000 lb; 1¾ in. and larger, 30,000 lb.

Extruded Solid Shapes, Rectangles: M, FS, in weight per ft, for perimeters of less than size indicated, 0.10 to 0.11 lb per ft, per. up to 3.5 in., 59.5¢; 0.22 to 0.25 lb per ft, per. up to 5.9 in., 55¢; 0.50 to 0.59 lb per ft, per. up to 8.6 in., 50.5¢; 1.8 to 2.59 lb per ft, per. up to 19.5 in., 47.5¢ 4 to 6 lb per ft, per. up to 28 in. 46.5¢. Other alloys higher. Base, in weight per ft of shape: Up to ½ lb, 10,000 lb; ½ lb to 1.80 lb, 20,000 lb; 1.80 lb and heavier, 30,000 lb.

Extruded Round Tubing: M, FS, wall thickness, outside diam, in., 0.049 to 0.057, ¼ in. to 5/16, $1.40; 5/16 to ⅜, $1.26; ½ to ⅝, 93¢; 1 to 2 in., 76¢; 0.165 to 0.219, ⅝ to ⅞, 61¢; 1 to 2 in., 57¢; 3 to 4 in., 56¢. Other alloys higher. Base, OD in in.: Up to 1½ in., 10,000 lb; 1½ in. to 3 in., 20,000 lb; 3 in. and larger, 30,000 lb.

Nickel and Monel

(Base prices, cents per lb, f.o.b. mill)

	"A" Nickel	Monel
Sheets, cold-rolled	69	53
Strip, cold-rolled	75	56
Rods and bars	65	51
Angles, hot-rolled	65	51
Plates	67	52
Seamless tubes	98	86
Shot and blocks	..	46

Copper, Brass, Bronze

(Cents per lb, freight prepaid on 200 lb, includes copper import duty)

	Sheets	Rods	Extruded Shapes
Copper	41.68	....	41.28
Copper, h-r	....	36.78	....
Copper, drawn	....	38.78	....
Low brass	38.92	38.61	....
Yellow brass	38.28	37.97	....
Red brass	40.14	39.83	....
Naval brass	42.33	37.14	38.40
Leaded brass	....	32.63	36.70
Com'l bronze	41.13	40.82	....
Manganese bronze	45.96	40.65	41.41
Phosphor bronze	60.20	60.45	....
Muntz metal	40.43	36.74	37.99
Everdur, Herculoy, Olympic, etc.	43.97	42.91	....
Nickel silver 10 pct	49.27	51.49	....
Arch. bronze	....	....	35.11

PRIMARY METALS

(Cents per lb, unless otherwise noted)

Aluminum ingot, 99+%, 10,000 lb, freight allowed	19.00
Aluminum pig	18.00
Antimony, American, Laredo, Tex.	32.00
Beryllium metal, 95%, lumps, beads	$95.00
Beryllium copper, 3.75-4.25% Be, dollars per lb contained Be	$30.00
Beryllium aluminum 5% Be, dollars per lb contained Be	$65.00
Bismuth, ton lots	$2.25
Cadmium, del'd	$2.40
Cobalt, 97-99% (per lb)	$1.80 to $1.87
Copper, electro, Conn. Valley	24.50
Copper, Lake, delivered	24.625
Gold, U. S. Treas., dollars per oz.	$35.00
Indium, 99.8%, dollars per troy oz.	$2.25
Iridium, dollars per troy oz.	$220
Lead St. Louis	15.80
Lead, New York	16.00
Magnesium, 99.8+%, f.o.b. Freeport Tex., 10,000 lb	24.50
Magnesium, sticks, 100 to 500 lb	42.00 to 44.00
Mercury, dollars per 76-lb flask f.o.b. New York	$90 to $95
Nickel, electro, f.o.b. New York	51.22
Nickel oxide sinter, f.o.b. Copper Cliff, Ont., contained nickel	44.25
Palladium, dollars per troy oz.	$24.00
Platinum, dollars per troy oz.	$100 to $103
Silver, New York, cents per oz.	77.75
Tin, New York	$1.1775
Zinc, East St. Louis	17.50
Zinc, New York	18.22
Zirconium copper, 50 pct	$6.20

REMELTED METALS

Brass Ingot

(Cents per lb delivered, carloads)

85-5-5-5 ingot	
No. 115	27.00
No. 120	26.50
No. 123	26.00
80-10-10 ingot	
No. 305	31.00
No. 315	28.50
88-10-2 ingot	
No. 210	42.00
No. 215	39.00
No. 245	33.00
Yellow ingot	
No. 405	23.75
Manganese bronze	
No. 421	31.00

Aluminum Ingot

(Cents per lb, 30,000 lb lots)

95-5 aluminum-silicon alloys	
0.30 copper, max.	31.00-31.50
0.60 copper, max.	30.75-31.25
Piston alloys (No. 122 type)	27.25-28.00
No. 12 alum. (No. 2 grade)	27.00-27.50
108 alloy	28.00-28.25
195 alloy	28.50-29.00
13 alloy	31.00-31.50
AXS-679	27.50-28.50

Steel deoxidizing aluminum, notch-bar granulated or shot

Grade 1—95-97½%	28.50-29.00
Grade 2—92-95%	27.50-28.00
Grade 3—90-92%	27.00-27.50
Grade 4—85-90%	26.50-27.00

ELECTROPLATING SUPPLIES

Anodes

(Cents per lb, freight allowed, in 500 lb lots)

Copper	
Cast, oval, 15 in. or longer	39¼
Electrodeposited	33¾
Rolled, oval, straight, delivered	38⅞
Forged ball anodes	43
Brass, 80-20	
Cast, oval, 15 in. or longer	34¾
Zinc, oval	26½
Ball anodes	25½
Nickel 99 pct plus	
Cast	68.00
Rolled, depolarized	69.00
Cadmium	$2.65
Silver 999 fine, rolled, 100 oz lots, per troy oz, f.o.b. Bridgeport, Conn.	79½

Chemicals

(Cents per lb, f.o.b. shipping point)

Copper cyanide, 100 lb drum	52.15
Copper sulfate, 99.5 crystals, bbl.	12.85
Nickel salts, single or double, 4-100 lb bags, frt allowed	20½
Nickel chloride, 375 lb drum	27½
Silver cyanide, 100 oz lots, per oz.	61¼
Sodium cyanide, 96 pct domestic 200 lb drums	19.25
Zinc cyanide, 100 lb drums	45.85

SCRAP METALS

Brass Mill Scrap

(Cents per pound; add ½¢ per lb for shipments of 20,000 to 40,000 lb; add 1¢ for more than 40,000 lb)

	Heavy	Turnings
Copper	23	22¼
Yellow brass	20¼	18¾
Red brass	21½	20¾
Comm. bronze	21¾	21
Mang. bronze	19½	18⅝
Brass rod ends	19⅞	....

Custom Smelters' Scrap

(Cents per pound, carload lots, delivered to refinery)

No. 1 copper wire	21.75
No. 2 copper wire	20.75
Light copper	19.75
Refinery brass	20.50*
Radiators	16.50

*Dry copper content.

Ingot Makers' Scrap

(Cents per pound, carload lots, delivered to producer)

No. 1 copper wire	21.75
No. 2 copper wire	20.75
Light copper	19.75
No. 1 composition	21.00
No. 1 comp. turnings	20.50
Rolled brass	18.00
Brass pipe	20.00
Radiators	16.50
Heavy yellow brass	16.00
Aluminum	
Mixed old cast	16.00
Mixed old clips	16.50
Mixed turnings, dry	15.50
Pots and pans	16.00
Low copper	18.50

Dealers' Scrap

(Dealers' buying prices, f.o.b. New York in cents per pound)

Copper and Brass	
No. 1 heavy copper and wire	22⅛—23
No. 2 heavy copper and wire	21 —21½
Light copper	20 —20½
New type shell cuttings	20 —20½
Auto radiators (unsweated)	15 —15½
No. 1 composition	18 —18½
No. 1 composition turnings	17½—18
Clean red car boxes	15½—16
Cocks and faucets	15½—16
Mixed heavy yellow brass	13 —13½
Old rolled brass	14¼—14¾
Brass pipe	16½—17
New soft brass clippings	18 —18½
Brass rod ends	16¾—17
No. 1 brass rod turnings	16 —16¼
Aluminum	
Alum. pistons and struts	11½—12
Aluminum crankcases	14½—15
2S aluminum clippings	17½—18
Old sheet and utensils	14½—15
Borings and turnings	10
Misc. cast aluminum	14½—15
Dural clips (24S)	14½—15
Zinc	
New zinc clippings	14½—15
Old zinc	11¼—11½
Zinc routings	8¼— 8¾
Old die cast scrap	8¼— 8¾
Nickel and Monel	
Pure nickel clippings	50 —60
Clean nickel turnings	47 —57
Nickel anodes	50 —60
Nickel rod ends	50 —60
New Monel Clippings	17 —21
Clean Monel turnings	15 —17
Old sheet Monel	16 —20
Inconel clippings	22 —26
Nickel silver clippings, mixed	13 —14
Nickel silver turnings, mixed	12 —13
Lead	
Soft scrap, lead	13¾—14
Battery plates (dry)	8¼— 8½
Magnesium	
Segregated solids	9 —10
Castings	5½— 6½
Miscellaneous	
Block tin	83 —85
No. 1 pewter	63 —65
No. 1 auto babbitt	57 —59
Mixed common babbitt	13 —13½
Solder joints	18½—19
Siphon tops	53 —55
Small foundry type	17 —17½
Monotype	16 —16½
Lino. and stereotype	15 —15½
Electrotype	13¾—14½
Hand picked type shells	7 — 7½
Lino. and stereo. dross	4¾— 5¼
Electro. dross	3¼— 3¾

MARKETS—PRICES—TRENDS

SCRAP
Iron & Steel

Formula Prices Hold; Pittsburgh Market Quiet

The scrap market was quiet in the steel heartland, Pittsburgh, with the mills still harping successfully on the familiar theme—stick to the formula on new business. The formula front was intact in all centers but the price of No. 2 heavy melting in Detroit was pushed up to a $32.50 top from $31. Over the formula purchases were rumored in Chicago.

Cast and railroad items saw a comparative lull in their boom but were still very strong and active. Their gains this week can only be considered temperate when compared with the upward bolts of recent weeks.

In Detroit pressures rising under tight formula control may activate prices for electric furnace grades and put the squeeze on electric producers. The mills upheld the formula in Philadelphia but fewer and fewer sales are being made. Cleveland's "strong and unruly" market saw no price changes but it was reported that shipments fell 50 pct in 2 weeks. Scrap is simply being diverted to more profitable channels.

PITTSBURGH—The market is quiet. Formula price continued to hold on No. 1 heavy melting. At least one consumer was paging springboard and said scrap was drying up at the formula. The mills insist on adhering to the formula on new business. No. 1 machinery cast was up $1 to $56. Foundries are so desperate for cast scrap that they are sending out trucks to round up small tonnages. Due to typographical error, machine shop turnings in issues of Oct. 12 and Oct. 19 were quoted $34 to $34.50. Correct price was $34.50 to $35.

CHICAGO—The scrap market in the Chicago area remained strong this week with some brokers reporting that they have to offer $40 and $38 for No. 1 and No. 2 heavy melting steel. As yet no mill has bought at over the formula price. However, there were unconfirmed rumors at the begininng of this week that an outlying mill would top the formula. Machine shop and mixed borings and turnings advanced to $34 per gross ton. No. 1 machinery cast went up $1 per gross ton to a top of $56. Some dealers are laying down cast in hopes of higher prices.

PHILADELPHIA—The mills are still holding to the formula prices for steel grades but there are increasingly fewer sales being made at that level. Scrap for conversion is selling as high as $45 per gross ton and the pressure this puts on the formula is continuing to mount. The cast market is practically out of control and sellers can just about name their own prices. European cast scrap and specialties are being imported.

NEW YORK—Determination of mills to hold the formula price front was reported and prices did not step out of line this week. Movement of scrap at formula prices was nothing to rave about and considering high mill output, could be judged poor. Cast grades took up where they had left off and started up again. No. 1 machinery cast was pegged at $41 to $42. Other grades added from $1 to $1.50.

DETROIT—The scrap formula is holding here but pressures are rising that may, sooner or later, push existing prices for electric furnace grades to higher levels. According to reliable trade sources, these factors are tending to squeeze electric producers into a tighter corner with each passing day: More scrap is being earmarked each month; collections by peddlers are tapering off; auto output is falling off perceptibly from week to week and is hardly likely to again reach the peak achieved before.

CLEVELAND—A strong and unruly scrap market here and in the Valley was shaking the foundations of the formula price structure this week in a welter of cross hauling, up-grading and springboards. Despite the fact that hoarding is not being practiced on a broad scale, shipments have dropped 50 pct, according to trade sources, within the past 2 weeks, due simply to diversion of scrap to other channels, foundries and converters, and of course, to higher prices. Brokers complain they cannot buy anything except allocated tonnage at the formula. Mills are paying, with springboards, $46 to $47, which seemingly will not do the job.

ST. LOUIS—Railroad specialties are sharply up, with cast iron car wheels especially strong at an advance of $6 a ton. Railroad lists are not as large as had been hoped for, and there has been some exchange of finished products for wheels and locomotive tires. Foundries are paying more for items because of the shortage and the fact that lower prices failed to bring out the material.

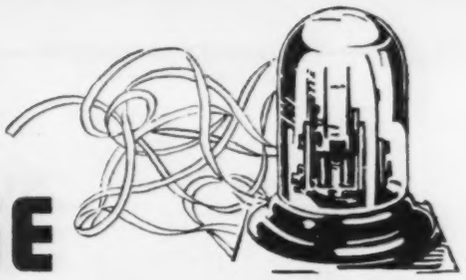
CINCINNATI—Demand for openhearth grades continues to exceed the tonnage available at the formula by a wide margin. Big test is expected to come in about a week, when some of the major consumers in this district come in for monthly requirements. Dealers are selling primarily small tonnages at the formula, and with the advent of springboards in other districts, brokers are watching for any attempt to raid this market. Foundry grades are very hot.

BOSTON—With No. 1 machinery cast hitting an all-time high of $41 to $42, the cast market here showed high activity. No. 2 heavy melting was up $1 to $29 to $29.50. No. 2 bundles were up 50¢ to $27.50 to $28.50. Machine shop turnings, mixed borings and turnings, and shoveling turnings were all up 50¢.

BIRMINGHAM—Demand for scrap of all types continues strong here, and there is not enough coming in to supply it. Because there is not enough pig iron going around, users are having to buy good grades whenever they can. Much cast iron scrap formerly coming into this section from the Southwest now is going North, where prices are higher. Scrap rails, random length, and rails, 2 feet and under, advanced another $2 Friday.

BUFFALO—Strength of other markets was reflected in cast sales here, but price advances were smaller. Sales of cupola were reported to a leading consumer at a range of $44.50 to $45. Dealers said high prices being quoted on No. 1 machinery cast were not duplicated here as this grade was pitched about $3 above cupola. Cast items advanced.

WAR TALK *about* WAREHOUSE STEEL SERVICE



RELIANCE *Job-Fitted* **PRODUCTS AND SERVICES**

COLD ROLLED STRIP STEEL

Coils . . . Cut Lengths . . . All Tempers
Slit, Sheared, Deburred
and Round Edge
From WAREHOUSE
or
DIRECT-FROM-MILL

SHEETS

Cold Rolled . . . Hot Rolled
Hot Rolled Pickled . . . Long Terne
Galvanized
Standard or production sizes
or cut to actual working
dimensions
from
WAREHOUSE STOCKS

Strategic buying depends on accurate intelligence of what and how much is needed, and where and when it's needed. That's the logistics of steel procurement.

The objective is to prepare for and support your manufacturing timetable. You anticipate where and how shortage attacks are apt to originate. You aim to neutralize them before they start.

Tactical buying hurls back your job-enemies before they can infiltrate and disrupt your production lines. In emergencies, it helps you keep your production front intact.

In strategic procurement campaigns, your main support usually comes from your mill allies. In tactical buying operations, you place reliance on warehouse steel reserves . . . your mobile forces, stationed close by, ready to spring to your defense.

And you can count on RELIANCE to cooperate with you as long as inventory ammunition is available.

DEPENDABLE DAN
OUR CUSTOMERS' MAN

STEEL—BULWARK OF NATIONAL SECURITY

For Immediate Action Call The Nearest Reliance Plant or Office:

DETROIT STEEL CORPORATION

PRODUCERS OF
Coke and Coal Chemicals • Pig Iron • Ingots
Slabs • Sheet Bars • Billets • Wire Rods
Manufacturers' Wire • Merchant Wire Products
Welded Fabric • Cold Rolled Strip Steel

GENERAL OFFICES
DETROIT 9, MICHIGAN

RELIANCE STEEL DIVISION

Processors and Distributors JOB-FITTED Sheet and Strip Steel

GENERAL OFFICES — BOX 4308 — PORTER STATION, DETROIT 9, MICHIGAN

PLANTS

CLEVELAND PLANT, 3344 E. 80th St., VUlcan 3-3600, Cleveland 4, O.
DETROIT PLANT, 13770 Joy Road, WEbster 3-5866, Detroit 28, Mich.
EASTERN PLANT, State & Edmund Sts. (Hamden), New Haven 7-5781, New Haven 7, Conn.
MIDWEST PLANT, 1601 South Wolcott Ave., CAnal 6-2442, Chicago 8, Ill.

OFFICES

DAVENPORT, IOWA, 828 Davenport Bank Bldg., Phone 3-7290
DETROIT 28, MICH., 13770 Joy Road, WEbster 3-5866
GRAND RAPIDS 2, MICH., 326 Keeler Bldg., GLendale 8-9589
INDIANAPOLIS 4, IND., 1490 Fletcher Trust Bldg., FRanklin 3429
JACKSON 18, MICH., 881 Reynolds Bldg., JAckson 3-3253
NEW YORK 19, N. Y., 250 West 57th St., COlumbus 5-4870
ST. LOUIS 8, MO., 4053 Lindell Blvd., LUcas 4550
TOLEDO 4, OHIO, 2114 Ohio Bldg., GArfield 8384
WORCESTER 8, MASS., 339 Main St., WOrcester 5-8068

Iron and Steel

SCRAP PRICES

Going prices as obtained in the trade by THE IRON AGE, based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

Pittsburgh

No. 1 hvy. melting	$43.50 to $44.00
No. 2 hvy. melting	40.50 to 41.00
No. 1 bundles	46.00 to 46.50
No. 2 bundles	38.50 to 39.00
Machine shop turn.	34.50 to 35.00
Mixed bor. and ms. turns.	34.50 to 35.00
Shoveling turnings	37.50 to 38.00
Cast iron borings	37.00 to 37.50
Low phos. plate	51.50 to 52.00
Heavy turnings	44.50 to 45.00
No. 1 RR. hvy. melting	44.00 to 45.00
Scrap rails, random lgth.	60.50 to 61.00
Rails 2 ft and under	67.00 to 68.00
RR. steel wheels	56.00 to 57.00
RR. spring steel	56.00 to 57.00
RR. couplers and knuckles	56.00 to 57.00
No. 1 machinery cast	55.50 to 56.00
Mixed yard cast.	48.50 to 49.00
Heavy breakable cast.	46.50 to 47.00
Malleable	64.00 to 65.00

Chicago

No. 1 hvy. melting	$39.50 to $40.00
No. 2 hvy. melting	37.50 to 38.00
No. 1 factory bundles	39.50 to 40.00
No. 1 dealers' bundles	39.50 to 40.00
No. 2 dealers' bundles	34.00 to 35.00
Machine shop turn.	33.00 to 34.00
Mixed bor. and turn.	33.00 to 34.00
Shoveling turnings	33.00 to 34.00
Cast iron borings	33.00 to 34.00
Low phos. forge crops	52.00 to 53.00
Low phos. plate	51.00 to 52.00
No. 1 RR. hvy. melting	44.50 to 45.50
Scrap rails, random lgth.	59.00 to 60.00
Rerolling rails	64.00 to 65.00
Rails 2 ft and under	63.50 to 65.00
Locomotive tires, cut	54.00 to 55.00
Cut bolsters & side frames	52.00 to 53.00
Angles and splice bars	61.00 to 62.00
RR. steel car axles	88.00 to 89.00
RR. couplers and knuckles	65.00 to 66.00
No. 1 machinery cast.	55.00 to 56.00
No. 1 agricul. cast.	51.00 to 52.00
Heavy breakable cast.	45.00 to 46.00
RR. grate bars	43.50 to 44.50
Cast iron brake shoes	46.50 to 47.50
Cast iron car wheels	54.00 to 55.00
Malleable	65.00 to 66.00

Philadelphia

No. 1 hvy. melting	$38.00 to $39.00
No. 2 hvy. melting	35.00 to 36.00
No. 1 bundles	38.00 to 39.00
No. 2 bundles	31.00 to 32.00
Machine shop turn.	28.00 to 29.00
Mixed bor. and turn.	26.00 to 27.00
Shoveling turnings	32.00 to 33.00
Low phos. punchings, plate	47.00 to 48.00
Low phos. 5 ft and under	46.00 to 47.00
Low phos. bundles	44.00 to 45.00
Hvy. axle forge turn.	38.00 to 39.00
Clean cast chem. borings	39.00 to 40.00
RR. steel wheels	50.00 to 51.00
RR. spring steel	50.00 to 51.00
Rails 18 in. and under	63.00 to 64.00
No. 1 machinery cast.	51.00 to 52.00
Mixed yard cast.	47.00 to 48.00
Heavy breakable cast.	47.00 to 48.00
Cast iron carwheels	55.00 to 56.00
Malleable	60.00 to 61.00

Cleveland

No. 1 hvy. melting	$43.00 to $43.50
No. 2 hvy. melting	40.00 to 40.50
No. 1 busheling	43.00 to 43.50
No. 1 bundles	43.00 to 43.50
No. 2 bundles	28.00 to 28.50
Machine shop turn.	35.00 to 35.50
Mixed bor. and turn.	36.00 to 36.50
Shoveling turnings	37.00 to 37.50
Cast iron borings	37.00 to 37.50
Low phos. 2 ft and under	45.50 to 46.00
Steel axle turn.	43.00 to 43.50
Drop forge flashings	43.00 to 43.50
No 1 RR. hvy. melting	43.50 to 44.00
Rails 3 ft and under	65.00 to 66.00
Rails 18 in. and under	66.00 to 67.00
No. 1 machinery cast.	62.00 to 63.00
RR. cast.	62.00 to 63.00
RR. grate bars	45.00 to 46.00
Stove plate	50.00 to 51.00
Malleable	66.00 to 67.00

Youngstown

No. 1 hvy. melting	$43.50 to $44.00
No. 2 hvy. melting	40.50 to 41.00
No. 1 bundles	43.50 to 44.00
No. 2 bundles	$38.50 to $39.00
Machine shop turn.	35.50 to 36.00
Shoveling turnings	37.50 to 38.00
Cast iron borings	37.50 to 38.00
Low phos. plate	46.00 to 46.50

Buffalo

No. 1 hvy. melting	$41.00 to $42.00
No 2 hvy. melting	37.50 to 38.50
No 1 busheling	37.50 to 38.50
No. 1 bundles	39.50 to 40.00
No. 2 bundles	36.00 to 36.50
Machine shop turn.	33.00 to 34.00
Mixed bor. and turn.	33.00 to 34.00
Shoveling turnings	34.00 to 35.00
Cast iron borings	33.00 to 34.00
Low phos. plate	47.00 to 48.00
Scrap rails, random lgth.	52.00 to 53.00
Rails 2 ft and under	58.00 to 60.00
RR. steel wheels	52.00 to 53.00
RR. spring steel	52.00 to 53.00
RR. couplers and knuckles	52.00 to 53.00
No. 1 machinery cast.	47.00 to 48.00
No. 1 cupola cast.	44.50 to 45.00
Small indus. malleable	56.00 to 57.00

Birmingham

No. 1 hvy. melting	$36.00 to $37.00
No. 2 hvy. melting	33.00 to 34.00
No. 2 bundles	31.00 to 32.00
No. 1 busheling	34.00 to 35.00
Machine shop turn.	27.00 to 28.00
Shoveling turnings	29.00 to 30.00
Cast iron borings	25.00 to 26.00
Bar crops and plate	44.00 to 45.00
Structural and plate	44.00 to 45.00
No. 1 RR. hvy. melting	41.00 to 42.00
Scrap rails, random lgth.	50.00 to 51.00
Rerolling rails	58.00 to 59.00
Rails 2 ft. and under	61.00 to 62.00
Angles & splice bars	54.00 to 55.00
Std. steel axles	59.00 to 60.00
No. 1 cupola cast.	54.00 to 55.00
Stove plate	48.00 to 49.00
Cast iron carwheels	46.00 to 47.00

St. Louis

No. 1 hvy. melting	$40.00 to $41.00
No. 2 hvy. melting	36.00 to 37.00
No. 2 bundled sheets	35.00 to 36.00
Machine shop turn.	27.50 to 28.50
Shoveling turnings	30.00 to 31.00
Rails, random lengths	53.00 to 55.00
Rails 3 ft and under	56.00 to 58.00
Locomotive tires, uncut	51.00 to 52.00
Angles and splice bars	54.00 to 55.00
Std. steel car axles	76.00 to 78.00
RR. spring steel	54.00 to 55.00
No. 1 machinery cast.	49.00 to 50.00
Hvy. breakable cast.	42.00 to 43.00
Cast iron brake shoes	45.00 to 46.00
Stove plate	40.00 to 41.00
Cast iron car wheels	54.00 to 55.00
Malleable	58.00 to 60.00

New York

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	$34.00 to $34.50
No. 2 hvy. melting	29.00 to 30.00
No. 2 bundles	28.50 to 29.00
Machine shop turn.	24.00 to 25.00
Mixed bor. and turn.	24.00 to 25.00
Shoveling turnings	26.00 to 27.00
Clean cast chem. bor.	34.50 to 35.50
No. 1 machinery cast.	41.00 to 42.00
Mixed yard cast.	39.00 to 40.00
Charging box cast.	39.00 to 40.00
Heavy breakable cast.	39.00 to 40.00
Unstrp. motor blocks	33.00 to 34.00

Boston

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	$32.50
No. 2 hvy. melting	$29.00 to 29.50
No. 1 bundles	32.50
No. 2 bundles	$27.50 to $28.00
Machine shop turn.	24.00 to 24.50
Mixed bor. and turn.	23.50 to 24.00
Shoveling turnings	25.50 to 26.00
No. 1 busheling	31.50 to 32.00
Clean cast chem. borings	29.00 to 30.00
No. 1 machinery cast.	41.00 to 42.00
Mixed cupola cast.	37.00 to 38.00
Heavy breakable cast.	36.50 to 37.00
Stove plate	36.50 to 37.00

Detroit

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	$37.00 to $37.50
No. 2 hvy. melting	32.00 to 32.50
No. 1 bundles	37.00 to 37.50
New busheling	37.00 to 37.50
Flashings	37.00 to 37.50
Machine shop turn.	29.00 to 29.50
Mixed bor. and turn.	29.00 to 29.50
Shoveling turnings	31.00 to 31.50
Cast iron borings	31.00 to 31.50
Low phos. plate	39.00 to 40.00
No. 1 cupola cast.	54.00 to 55.00
Heavy breakable cast.	44.00 to 46.00
Stove plate	44.00 to 45.00
Automotive cast.	56.00 to 57.00

Cincinnati

Per gross ton, f.o.b. cars:

No. 1 hvy. melting	$42.00 to $42.50
No. 2 hvy. melting	38.00 to 38.50
No. 1 bundles	42.00 to 42.50
No. 2 bundles, black	38.00 to 38.50
No. 2 bundles, mixed	32.50 to 33.00
Machine shop turn.	26.50 to 27.00
Mixed bor. and turn.	28.50 to 29.00
Shoveling turnings	29.50 to 30.00
Cast iron borings	29.50 to 30.00
Low phos. 18 in. under	54.00 to 55.00
Rails, random lengths	60.00 to 61.00
Rails, 18 in. and under	69.00 to 70.00
No. 1 cupola cast.	61.00 to 62.00
Hvy. breakable cast.	51.00 to 52.00
Drop broken cast.	65.00 to 66.00

San Francisco

No. 1 hvy. melting		$26.50
No. 2 hvy. melting		24.50
No. 1 bundles		26.50
No. 2 bundles		22.50
No. 3 bundles		19.50
Machine shop turn.		13.00
Elec. fur. 1 ft and under		40.00
No. 1 RR. hvy. melting		26.50
Scrap rails, random lgth.		26.50
No. 1 cupola cast.	$42.00 to	46.00

Los Angeles

No. 1 hvy. melting		$26.50
No. 2 hvy. melting		24.50
No. 1 bundles		26.50
No. 2 bundles		22.50
No. 3 bundles		19.50
Mach. shop turn.		13.00
Elec. fur. 1 ft and under	44.00 to	47.00
No. 1 RR. hvy. melting		26.50
Scrap rails, random lgth.		26.50
No. 1 cupola cast.	$46.00 to	48.00

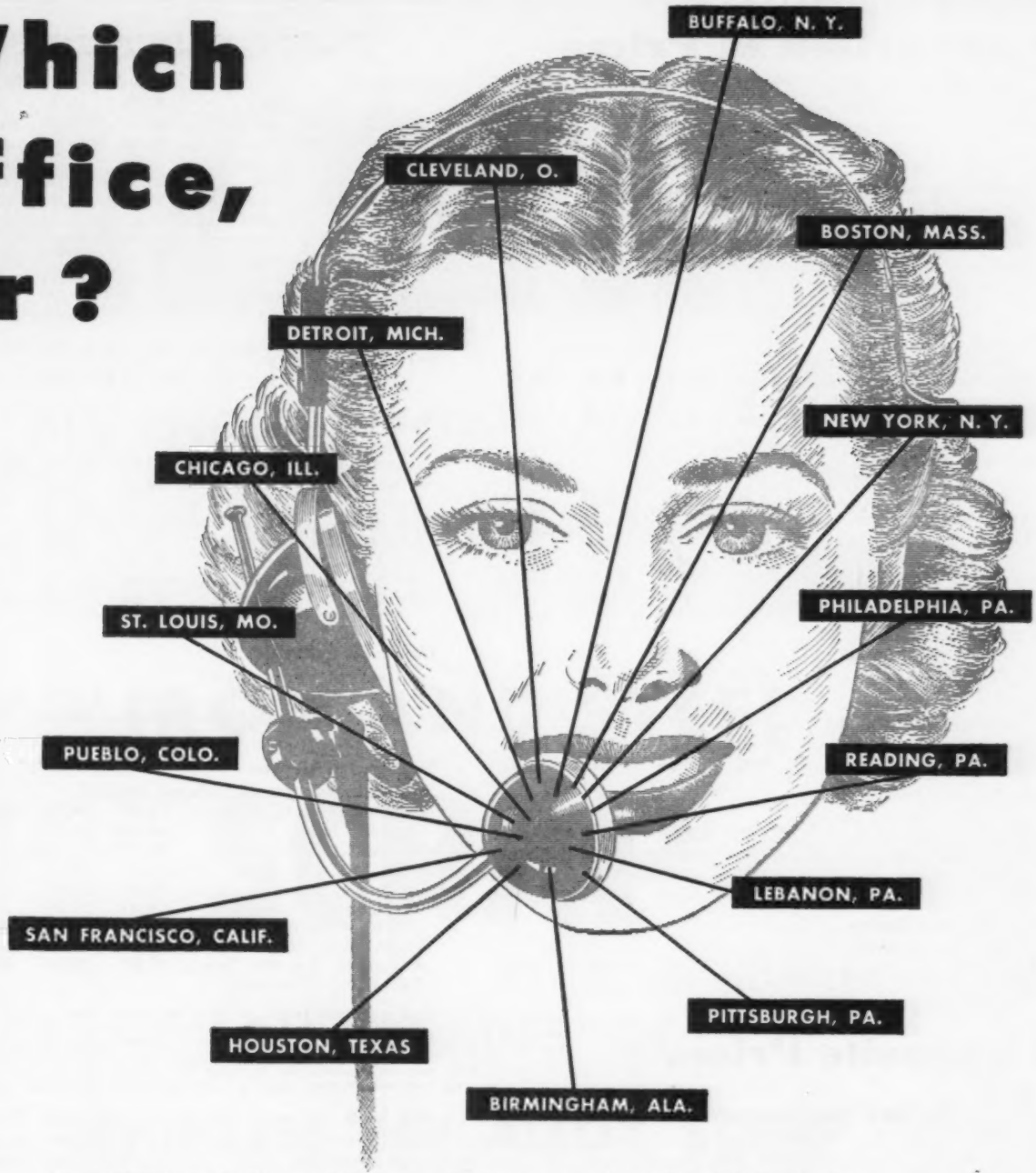
Seattle

No. 1 hvy. melting		$24.00
No. 2 hvy. melting		24.00
No. 1 bundles		22.00
No. 2 bundles		22.00
No. 3 bundles		18.00
Elec. fur. 1 ft and under	$29.00 to	30.00
RR. hvy. melting		25.00
No. 1 cupola cast		25.00
Heavy breakable cast.		25.00

Hamilton, Ont.

No. 1 hvy. melting		$30.00
No. 1 bundles		30.00
No. 2 bundles		29.50
Mechanical bundles		28.00
Mixed steel scrap		26.00
Mixed bor. and turn.		23.00
Rails, remelting		30.00
Rails, rerolling		33.00
Bushelings		24.50
Bush., new fact, prep'd.		29.00
Bush., new fact, unprep'd.		23.00
Short steel turnings		23.00
Cast scrap		45.00

Which office, sir?



Since 1889 Luria Brothers and Company, Inc. have pursued a policy of better service made possible by years of "know how" and personnel who have the desire to please.

The expansion of our organization, with offices located in 15 major cities, is in accordance with our policy to give better service to our customers.

CONSULT OUR NEAREST OFFICE FOR THE PURCHASE AND SALE OF SCRAP

LURIA BROTHERS AND COMPANY, INC.

Main Office

LINCOLN-LIBERTY BLDG.
Philadelphia 7, Pennsylvania

Yards

LEBANON, PA. • READING, PA.
DETROIT (ECORSE), MICH.
MODENA, PA. • PITTSBURGH, PA.
ERIE, PA.

Branch Offices

BIRMINGHAM, ALA. Empire Bldg.
CHICAGO, ILL. 100 W. Monroe St.
HOUSTON, TEXAS 1114 Texas Av. Bldg.
PITTSBURGH, PA. Oliver Bldg.
BOSTON, MASS. Statler Bldg.
CLEVELAND, O. 1022 Midland Bldg.
LEBANON, PA. Luria Bldg.
PUEBLO, COLO. 334 Colorado Bldg.
BUFFALO, N.Y. Genesee Bldg.
DETROIT, MICH. 2011 Book Bldg.
NEW YORK, N.Y. Woolworth Bldg.
READING, PA. Luria Bldg.
ST. LOUIS, MO. 2110 Railway Exchange Bldg.
SAN FRANCISCO, CAL. Pacific Gas & Elec. Co., Bldg.

LEADERS IN IRON AND STEEL SCRAP SINCE 1889

Comparison of Prices

Steel prices in this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Price advances over previous week are printed in Heavy Type; declines appear in *Italics*.

Flat-Rolled Steel (cents per pound)	Oct. 24, 1950	Oct. 17, 1950	Sept. 26, 1950	Oct. 25, 1949
Hot-rolled sheets	3.35	3.35	3.35	3.25
Cold-rolled sheets	4.10	4.10	4.10	4.00
Galvanized sheets (10 ga)	4.40	4.40	4.40	4.40
Hot-rolled strip	3.25	3.25	3.25	3.25
Cold-rolled strip	4.21	4.21	4.21	4.038
Plate	3.50	3.50	3.50	3.40
Plates wrought iron	7.85	7.85	7.85	7.85
Stains C-R strip (No. 302)	34.50	34.50	34.50	33.00
Tin and Terneplate: (dollars per base box)				
Tinplate (1.50 lb) cokes.	$7.50	$7.50	$7.50	$7.75
Tinplate, electro (0.50 lb)	6.60	6.60	6.60	6.70
Special coated mfg. ternes	6.35	6.35	6.35	6.65
Bars and Shapes: (cents per pound)				
Merchant bars	3.45	3.45	3.45	3.35
Cold finished bars	4.15	4.15	4.145	3.995
Alloy bars	3.95	3.95	3.95	3.75
Structural shapes	3.40	3.40	3.40	3.25
Stainless bars (No. 302)	30.00	30.00	30.00	28.50
Wrought iron bars	9.50	9.50	9.50	9.50
Wire: (cents per pound)				
Bright wire	4.50	4.50	4.50	4.15
Rails: (dollars per 100 lb)				
Heavy rails	$3.40	$3.40	$3.40	$3.20
Light rails	3.75	3.75	3.75	3.55
Semifinished Steel: (dollars per net ton)				
Rerolling billets	$54.00	$54.00	$54.00	$52.00
Slabs, rerolling	54.00	54.00	54.00	52.00
Forging billets	63.00	63.00	63.00	61.00
Alloy blooms, billets, slabs	66.00	66.00	66.00	63.00
Wire Rod and Skelp: (cents per pound)				
Wire rods	3.85	3.85	3.85	3.40
Skelp	3.15	3.15	3.15	3.25

Pig Iron: (per gross ton)	Oct. 24, 1950	Oct. 17, 1950	Sept. 26, 1950	Oct. 25, 1949
No. 2, foundry, del'd Phila.	$52.77	$52.77	$51.76	$50.42
No. 2, Valley furnace	49.50	49.50	49.50	46.50
No. 2, Southern Cin'ti	52.58	52.58	50.25	46.08
No. 2, Birmingham	45.88	45.88	43.55	39.38
No. 2, foundry, Chicago†	49.50	49.50	49.50	46.50
Basic del'd Philadelphia	51.92	51.92	50.92	49.92
Basic, Valley furnace	49.00	49.00	49.00	46.00
Malleable, Chicago†	49.50	49.50	49.50	46.50
Malleable, Valley	49.50	49.50	49.50	46.50
Charcoal, Chicago	70.56	70.56	70.56	68.56
Ferromanganese‡	173.40	173.40	173.40	173.40
Scrap: (per gross ton)				
Heavy melt'g steel, P'gh.	$43.75	$43.75	$43.75	$28.75
Heavy melt'g steel, Phila.	38.50	38.50	38.50	22.50
Heavy melt'g steel, Ch'go	39.75	39.75	39.75	25.50
No. 1 hy. com. sh't, Det.	37.25	37.25	37.25	19.50
Low phos. Young'n	46.25	46.25	46.25	29.75
No. 1 cast, Pittsburgh	55.75	54.75	51.75	39.50
No. 1 cast, Philadelphia	51.50	51.50	46.50	35.50
No. 1 cast, Chicago	55.50	54.50	50.50	42.00
Coke: Connellsville: (per net ton at oven)				
Furnace coke, prompt	$14.25	$14.25	$14.25	$14.25
Foundry coke, prompt	16.75	16.75	16.25	15.75
Nonferrous Metals: (cents per pound to large buyers)				
Copper, electro, Conn.	24.50	24.50	23.80	17.625
Copper, Lake, Conn.	24.625	24.625	24.625	17.75
Tin Straits, New York	$1.1775	†$1.125*	$1.04	95.00
Zinc, East St. Louis	17.50	17.50	17.50	9.25
Lead, St. Louis	15.80	15.80	15.80	12.80
Aluminum, virgin	19.00	19.00	18.25	17.00
Nickel, electrolytic	51.22	51.22	51.22	42.97
Magnesium, ingot	24.50	24.50	22.50	20.50
Antimony, Laredo, Tex.	32.00	32.00	32.00	32.00

†The switching charge for delivery to foundries in the Chicago district is $1 per ton.
‡Average of U. S. prices quoted on Ferroalloy page.

†Tentative. *Revised.

Composite Prices

Starting with the issue of May 12, 1949, the weighted finished steel composite was revised for the years 1941 to date. The weights used are based on the average product shipments for the 7 years 1937 to 1940 inclusive and 1946 to 1948 inclusive. The use of quarterly figures has been eliminated because it was too sensitive. (See p. 139 of May 12, 1949, issue.)

Finished Steel Base Price

		High		Low	
Oct. 24, 1950	3.837¢ per lb.	1950	3.837¢ Jan. 3	3.837¢ Jan.	3
One week ago	3.837¢ per lb.	1949	3.837¢ Dec. 27	3.3705¢ May	3
One month ago	3.837¢ per lb.	1948	3.721¢ July 27	3.193¢ Jan.	1
One year ago	3.705¢ per lb.	1947	3.193¢ July 29	2.848¢ Jan.	1
		1946	2.848¢ Dec. 31	2.464¢ Jan.	1
		1945	2.464¢ May 29	2.396¢ Jan.	1
		1944	2.396¢	2.396¢	
		1943	2.396¢	2.396¢	
		1942	2.396¢	2.396¢	
		1941	2.396¢	2.396¢	
		1940	2.30467¢ Jan. 2	2.24107¢ Apr.	16
		1939	2.35367¢ Jan. 3	2.26689¢ May	16
		1938	2.58414¢ Jan. 4	2.27207¢ Oct.	18
		1937	2.58414¢ Mar. 9	2.32263¢ Jan.	4
		1936	2.32263¢ Dec. 28	2.05200¢ Mar.	10
		1935	2.07542¢ Oct. 1	2.06492¢ Jan.	8
		1932	1.89196¢ July 5	1.83910¢ Mar.	1
		1929	2.31773¢ May 28	2.26498¢ Oct.	29

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold-rolled sheets and strips, representing major portion of finished steel shipment. Index recapitulated in Aug. 28, 1941, issue and in May 12, 1949.

Pig Iron

	High		Low	
Oct. 24, 1950	$49.36 per gross ton	1950	$49.36 Oct. 17	$45.88 Jan.	3
One week ago	49.36 per gross ton	1949	46.87 Jan. 18	45.88 Sept.	6
One month ago	48.80 per gross ton	1948	46.91 Oct. 12	39.58 Jan.	6
One year ago	45.88 per gross ton	1947	37.98 Dec. 30	30.14 Jan.	7
		1946	30.14 Dec. 10	25.37 Jan.	1
		1945	25.37 Oct. 23	23.61 Jan.	2
		1944	$23.61	$23.61	
		1943	23.61	23.61	
		1942	23.61	23.61	
		1941	$23.61 Mar. 20	$23.45 Jan.	2
		1940	23.45 Dec. 23	22.61 Jan.	2
		1939	22.61 Sept. 19	20.61 Sept.	12
		1938	23.25 June 21	19.61 July	6
		1937	32.25 Mar. 9	20.25 Feb.	16
		1936	19.74 Nov. 24	18.73 Aug.	11
		1935	18.84 Nov. 5	17.83 May	14
		1932	14.81 Jan. 5	13.56 Dec.	6
		1929	18.71 May 14	18.21 Dec.	17

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Scrap Steel

	High		Low	
Oct. 24, 1950	$40.67 per gross ton	1950	$41.58 Aug. 22	$26.25 Jan.	3
One week ago	40.67 per gross ton	1949	43.00 Jan. 4	19.33 June	28
One month ago	40.67 per gross ton	1948	43.16 July 27	39.75 Mar.	9
One year ago	25.58 per gross ton	1947	42.58 Oct. 28	29.50 May	20
		1946	31.17 Dec. 24	19.17 Jan.	1
		1945	19.17 Jan. 2	18.92 May	22
		1944	19.17 Jan. 11	15.76 Oct.	24
		1943	$19.17	$19.17	
		1942	19.17	19.17	
		1941	$22.00 Jan. 7	$19.17 Apr.	10
		1940	21.83 Dec. 30	16.04 Apr.	9
		1939	22.50 Oct. 3	14.08 May	16
		1938	15.00 Nov. 22	11.00 June	7
		1937	21.92 Mar. 30	12.67 June	9
		1936	17.75 Dec. 21	12.67 June	8
		1935	13.42 Dec. 10	10.33 Apr.	29
		1932	8.50 Jan. 12	6.43 July	5
		1929	17.58 Jan. 29	14.08 Dec.	8

Average of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.

IRON AGE

STEEL PRICES

Smaller numbers in price boxes indicate producing companies. For main office locations, see key on facing page.
Base prices at producing points apply only to sizes and grades produced in these areas. Prices are in cents per lb unless otherwise noted. Extras apply.

	Pittsburgh	Chicago	Gary	Cleveland	Canton Massillon	Middletown	Youngstown	Bethlehem	Buffalo	Conshohocken	Johnstown	Sparrows Point	Granite City	Detroit
INGOTS Carbon forging, net ton	$50.00[1]													$50.00[31]
Alloy, net ton	$51.00[1,17]													$51.00[31]
BILLETS, BLOOMS, SLABS Carbon, rerolling, net ton	$53.00[1]	$53.00[1]	$53.00[1]				$57.00[13]		$53.00[3]	$62.00[26]	$53.00[3]			
Carbon forging billets, net ton	$63.00[1]	$63.00[1,4]	$63.00[1,8]	$63.00[4]			$63.00[35]		$63.00[3,4]	$68.00[26]	$63.00[3]			$66.00[31]
Alloy, net ton	$66.00[1,17]	$66.00[1,4]	$66.00[1]		$66.00[4,43]			$66.00[3]	$66.00[3,4]	$70.00[26]	$66.00[3]			$69.00[31]
PIPE SKELP	3.15[1]						3.15[1,4]							
WIRE RODS	3.85[2] 4.05[18]	3.85[2,4,33]	3.85[6]	3.85[2]			3.85[6]				3.85[3]	3.95[3]		
SHEETS Hot-rolled (18 ga. & hvr.)	3.35[1,5,9,15]	3.35[33]	3.35[1,6,8]	3.35[4,5]			3.35[1,4,6] 3.75[13]		3.35[3]	3.60[26]		3.35[3]	4.05[22]	3.55[12] 4.15[47]
Cold-rolled	4.10[1,5,7,9,15] 5.10[63]		4.10[1,6,8]	4.10[4,15]		4.10[7]	4.10[4,6]		4.10[3]			4.10[3]	4.80[22]	4.30[12]
Galvanized (10 gage)	4.40[1,9,15]		4.40[1,8]		4.40[4]		4.75[44] 5.50[64]					4.40[3]		
Enameling (12 gage)	4.40[1]		4.40[1,8]	4.40[4]		4.40[7]	4.40[6] 4.90[76] 5.55[64]						5.10[22]	4.70[12]
Long ternes (10 gage)	4.80[9,15]		4.80[1]			4.80[7]	5.30[64]							
Hi Str. low alloy, h.r.	5.05[1,5,9]	5.05[1]	5.05[1,6,8]	5.05[4,5]			5.05[1,4] 5.30[6] 5.40[13]		5.05[3]	5.05[26]		5.05[3]		5.50[12]
Hi str. low alloy, c.r.	6.20[1,5,9]		6.20[1,6,8]	6.20[4,5]			6.20[4] 6.45[6]		6.20[3]			6.20[3]		6.65[12]
Hi str. low alloy, galv.	6.75[1]											6.75[3]		
STRIP Hot-rolled	3.25[5,7,9] 3.50[28] 3.75[41]	3.25[3,66]	3.25[1,6,8]	3.25[5]			3.25[1,4,6] 3.75[13]		3.25[3]	3.50[26]		3.25[3]		3.45[13] 4.00[47]
Cold-rolled	4.15[5,7,9] 4.85[63]	4.30[8] 4.50[66]	4.30[8]	4.15[2,5]		4.15[7]	4.15[4,6,45] 4.50[40] 4.85[13] 4.75[49]		4.15[3]			4.15[3]		4.35[13] 4.75[48] 4.95[47] 5.10[61]
Hi str. low alloy, h.r.	4.95[9]		4.95[1,6,8]	4.95[5]			4.95[1,4] 5.20[6] 5.30[13]		4.95[3]	4.95[26]		4.95[3]		5.40[12]
Hi Str. low alloy, c.r.	6.20[9]			6.20[2,5]			6.20[4] 6.45[6] 6.55[13]		6.40[3]			6.40[3]		6.40[12]
TINPLATE† Cokes, 1.50-lb base box 1.25 lb, deduct 20¢	$7.50[1,5,9,15]		$7.50[1,6,8]				$7.50[4]					$7.60[3]	$7.70[22]	
Electrolytic 0.25, 0.50, 0.75 lb box	Deduct $1.15, 90¢ and 65¢ respectively from 1.50-lb coke base box price													
BLACKPLATE, 29 gage Hollowware enameling	5.30[1,5,15]		5.30[1,6]				5.30[4]					5.40[3]	5.50[22]	
BARS Carbon steel	3.45[1,5,9]	3.45[1,4,33]	3.45[1,6,8]	3.45[4]	3.45[4]		3.45[1,4,6]		3.45[3,4]		3.45[3]			3.65[12]
Reinforcing‡	3.45[1,5]	3.45[4]	3.45[1,6,8]	3.45[4]			3.45[1,4,6]		3.45[3,4]		3.45[3]	3.45[3]		
Cold-finished	4.15[3,4,5,17,62,69,71]	4.15[3,33,69,70]	4.15[4,73,74]	4.15[3,61]	4.15[4,32,62]		4.15[6,49,67]		4.15[70]					4.35[13] 4.30[64]
Alloy, hot-rolled	3.95[1,17]	3.95[1,4,33]	3.95[1,6,8]		3.95[4]		3.95[1,6,35]	3.95[3]	3.95[3,4]		3.95[3]			4.25[13] 4.10[31]
Alloy, cold-drawn	4.90[3,17,52,69,71]	4.90[3,33,69,70]	4.90[4,73,74]	4.90[3,61]	4.90[4,42,62]		4.90[6,35,67]	4.90[3]	4.90[3,70]					5.05[64]
Hi str. low alloy, h.r.	5.20[1,5]		5.20[1,6,8]	5.20[4]			5.20[1] 5.45[6]	5.20[3]	5.20[3]		5.20[3]			5.65[13]
PLATE Carbon steel	3.50[1,5]	3.50[1]	3.50[1,6,8]	3.50[4]			3.50[1] 3.75[13]		3.50[3]	3.75[26]	3.50[3]	3.50[3]	4.20[22]	3.75[12]
Floor plates	4.55[1]	4.55	4.55[3]	4.55[5]						4.85[26]				
Alloy	4.40[1]	4.40[1]	4.40[1]				4.75[13]			4.85[26]	4.40	4.40[3]		
Hi Str. low alloy	5.35[1,5]	5.35[1]	5.35[1,3]	5.35[4,5]			5.60[6] 5.70[13]			5.35[26]	5.35[3]	5.35[3]		5.85[13]
SHAPES, Structural	3.40[1,5,9]	3.40[1,33]	3.40[1,6,8]					3.45[3]	3.45[3]		3.45[3]			
Hi str. low alloy	5.15[1,5]	5.15[1]	5.15[1,6,8]				5.40[6]	5.20[3]	5.20[3]		5.20[3]			
MANUFACTURERS' WIRE Bright	4.50[2,5] 4.75[18]	4.50[2,4,12,34] 4.85[33]		4.50[2,77]			4.50[6]	Kokomo—4.80[30]			4.50[3]	4.60[3]	Duluth—4.50[2] Pueblo—4.75[14]	
PILING, Steel Sheet	4.20[1,9]	4.20[1]							4.20[3]					

STEEL PRICES

Smaller numbers indicate producing companies. See key at right.
Prices are in cents per lb unless otherwise noted. Extras apply.

Kansas City	Houston	Birmingham	WEST COAST Seattle, San Francisco, Los Angeles, Fontana		
			F=$78.00		INGOTS Carbon forging, net ton
	$59.00[83]		F=$77.00		Alloy, net ton
		$53.00[11]	F=$72.00[19]		BILLETS, BLOOMS, SLABS Carbon, rerolling, net ton
	$71.00[83]	$63.00[11]	F=$82.00[19]	Geneva=$63.00[16]	Carbon forging billets, net ton
	$74.00[83]		F=$85.00[19]		Alloy net ton
					PIPE SKELP
	4.25[83]	3.85[11]	SF=4.50[24] LA=4.65[24,62]	Portsmouth=3.85[20] Worcester=4.15[2]	WIRE RODS
		3.35[4,11]	SF, LA=4.05[24] F=4.25[19]	Ashland=3.35[7] Niles=3.50[64], Geneva=3.45[16]	SHEETS Hot-rolled (18 ga. & hvr.)
		4.10[11]	SF=5.05[24] F=5.00[19]		Cold-rolled
		4.40[4,11]	SF, LA=5.15[24]	Ashland=4.40[7] Kokomo=4.50[30]	Galvanized (10 gage)
		4.40[11]			Enameling (12 gage)
					Long ternes (10 gage)
		5.05[11]	F=6.00[19]		Hi str. low alloy, h.r.
			F=7.05[19]		Hi str. low alloy, c.r.
					Hi str. low alloy, galv.
3.85[83]	3.65[83]	3.25[11]	SF, LA=4.00[24,62] F=4.40[19], S=4.25[62]	Ashland=3.25[7] Atlanta=3.80[65] New Britain=3.75[58] Minnequa=4.30[14]	STRIP Hot-rolled
			F=5.75[19] LA=5.85[27]	New Haven=4.65[3], 5.00[48] Trenton=5.00[45] New Britain=4.85[58]	Cold-rolled
		4.95[11]	F=5.90[19]		Hi str. low alloy, h.r.
			F=6.95[19]		Hi str. low alloy, c.r.
		7.60[11]	SF=8.25[24]		TINPLATE Cokes, 1.50-lb base box 1.25 lb, deduct 20¢
Deduct $1.15, 90¢ and 85¢ respectively from 1.50-lb coke base box price					Electrolytic 0.25, 0.50, 0.75 lb box
					BLACKPLATE, 29 gage Hollowware enameling
4.05[83]	3.85[83]	3.45[4,11]	SF, LA=4.15[24] LA=4.15[62]	Atlanta=4.00[65]	BARS Carbon steel
4.05[83]	3.85[83]	3.45[4,11]	SF, S=4.20[62] F=4.10[19]	Atlanta=4.00[65] Minnequa=4.25[14]	Reinforcing‡
				Putnam, Newark=4.55[69]	Cold-finished
4.55[83]	4.35[83]		LA=5.00[62] F=4.95[19]		Alloy, hot-rolled
				Newark,[69] Worcester[2]=5.20 Hartford=5.20[4]	Alloy-, cold-drawn
		5.20[11]	F=6.25[19]		Hi str. low alloy, h.r.
	3.90[83]	3.50[4,11]	F=4.10[19] S=4.40[62] Geneva=3.50[16]	Claymont=3.90[29] Coatesville=3.90[31] Harrisburg=4.25[36]	PLATE Carbon steel
				Harrisburg=5.25[36]	Floor plates
			F=5.40[19]	Coatesville=4.80[31]	Alloy
		5.35[11]	F=5.95[19]	Geneva=5.35[16]	Hi str. low alloy
4.00[83]	3.80[83]	3.40[11]	SF=3.95[62] LA=4.00[24,62]	Phoenixville=4.25[56] Gen'a=3.40[16] Minnequa=3.85[14]	SHAPES, Structural
		5.15[11]	F=4.00[19] S=4.05[62]	Fontana=5.75[19] Geneva=5.15[16]	Hi str. low alloy
5.10[83]	4.90[83]	4.50[4,11]	SF, LA=5.45[24,62,14]	Portsmouth=4.50[20] Worcester=4.80[2]	MANUFACTURERS' WIRE Bright

Notes: †Special coated mfg ternes deduct $1.15 from 1.50-lb coke base box price. Can-making quality blackplate, 55 to 128-lb, deduct $1.90 from 1.50-lb coke base box. ‡Straight lengths only from producer to fabricator.

KEY TO STEEL PRODUCERS

With Principal Offices

1 Carnegie-Illinois Steel Corp., Pittsburgh
2 American Steel & Wire Co., Cleveland
3 Bethlehem Steel Co., Bethlehem
4 Republic Steel Corp., Cleveland
5 Jones & Laughlin Steel Corp., Pittsburgh
6 Youngstown Sheet & Tube Co., Youngstown
7 Armco Steel Corp., Middletown, Ohio
8 Inland Steel Co., Chicago
9 Weirton Steel Co., Weirton, W. Va.
10 National Tube Co., Pittsburgh
11 Tennessee Coal, Iron & R. R. Co., Birmingham
12 Great Lakes Steel Corp., Detroit
13 Sharon Steel Corp., Sharon, Pa.
14 Colorado Fuel & Iron Corp., Denver
15 Wheeling Steel Corp., Wheeling, W. Va.
16 Geneva Steel Co., Salt Lake City
17 Crucible Steel Co. of America, New York
18 Pittsburgh Steel Co., Pittsburgh
19 Kaiser Steel Corp., Oakland, Calif.
20 Portsmouth Div., Detroit Steel Corp., Detroit
21 Lukens Steel Co., Coatesville, Pa.
22 Granite City Steel Co., Granite City, Ill.
23 Wisconsin Steel Co., South Chicago, Ill.
24 Columbia Steel Co., San Francisco
25 Copperweld Steel Co., Glassport, Pa.
26 Alan Wood Steel Co., Conshohocken, Pa.
27 Calif. Cold Rolled Steel Corp., Los Angeles
28 Allegheny Ludlum Steel Corp., Pittsburgh
29 Worth Steel Co., Claymont, Del.
30 Continental Steel Corp., Kokomo, Ind.
31 Rotary Electric Steel Co., Detroit
32 Laclede Steel Co., St. Louis
33 Northwestern Steel & Wire Co., Sterling, Ill.
34 Keystone Steel & Wire Co., Peoria, Ill.
35 Central Iron & Steel Co., Harrisburg, Pa.
36 Carpenter Steel Co., Reading, Pa.
37 Eastern Stainless Steel Corp., Baltimore
38 Washington Steel Corp., Washington, Pa.
39 Jessop Steel Co., Washington, Pa.
40 Blair Strip Steel Co., New Castle, Pa.
41 Superior Steel Corp., Carnegie, Pa.
42 Timken Steel & Tube Div., Canton, Ohio*
43 Babcock & Wilcox Tube Co., Beaver Falls, Pa.
44 Reeves Steel & Mfg. Co., Dover, Ohio
45 John A. Roebling's Sons Co., Trenton, N. J.
46 Simonds Saw & Steel Co., Fitchburg, Mass.
47 McLouth Steel Corp., Detroit
48 Cold Metal Products Co., Youngstown
49 Thomas Steel Co., Warren, Ohio
50 Wilson Steel & Wire Co., Chicago
51 Sweet's Steel Co., Williamsport, Pa.
52 Superior Drawn Steel Co., Monaca, Pa.
53 Tremont Nail Co., Wareham, Mass.
54 Firth Sterling Steel & Carbide Corp., McKeesport, Pa.
55 Ingersoll Steel Div., Chicago
56 Phoenix Iron & Steel Co., Phoenixville, Pa.
57 Fitzsimmons Steel Co., Youngstown
58 Stanley Works, New Britain, Conn.
59 Universal-Cyclops Steel Corp., Bridgeville, Pa.
60 American Cladmetals Co., Carnegie, Pa.
61 Cuyahoga Steel & Wire Co., Cleveland
62 Bethlehem Pacific Coast Steel Corp., San Francisco
63 Follansbee Steel Corp., Pittsburgh
64 Niles Rolling Mill Co., Niles, Ohio
65 Atlantic Steel Co., Atlanta
66 Acme Steel Co., Chicago
67 Joslyn Mfg. & Supply Co., Chicago
68 Detroit Steel Corp., Detroit
69 Wyckoff Steel Co., Pittsburgh
70 Bliss & Laughlin, Inc., Harvey, Ill.
71 Columbia Steel & Shafting Co., Pittsburgh
72 Cumberland Steel Co., Cumberland, Md.
73 La Salle Steel Co., Chicago
74 Monarch Steel Co., Inc., Hammond, Ind.
75 Empire Steel Co., Mansfield, Ohio
76 Mahoning Valley Steel Co., Niles, Ohio
77 Oliver Iron & Steel Co., Pittsburgh
78 Pittsburgh Screw & Bolt Co., Pittsburgh
79 Standard Forging Corp., Chicago
80 Driver Harris Co., Harrison, N. J.
81 Detroit Tube & Steel Div., Detroit
82 Reliance Div., Eaton Mfg. Co., Massillon, Ohio
83 Sheffield Steel Corp., Kansas City
84 Plymouth Steel Co., Detroit

*Add 10 pct to quoted prices

STAINLESS STEELS

Base prices, in cents per pound, f.o.b. producing point

Product	301	302	303	304	316	321	347	410	416	430
Ingots, rerolling	13.75	14.50	16.00	15.50	23.75	19.25	21.00	12.25	14.25	12.50
Slabs, billets, rerolling	18.00	19.25	21.25	20.25	31.25	25.50	27.75	16.50	19.50	16.25
Forg. discs, die blocks, rings	32.00	32.00	34.50	33.50	50.50	38.00	42.50	26.00	26.50	26.50
Billets, forging	25.75	25.75	27.75	27.00	40.50	30.50	34.25	21.00	21.50	21.50
Bars, wire, structurals	30.00	30.00	32.50	31.50	47.50	35.50	40.00	24.50	25.00	25.00
Plates	32.00	32.00	34.00	34.00	50.50	39.50	44.00	26.00	26.50-27.00	26.50
Sheets	39.00	39.00	41.00	41.00	54.50	47.00	51.50	34.50	35.00	37.00
Strip, hot-rolled	25.50	27.00	31.25	29.00	47.25	35.75	40.00	22.50	29.25	23.00
Strip, cold-rolled	32.00	34.50	38.00	36.50	56.50	46.00	50.00	28.50	35.00	29.00

STAINLESS STEEL PRODUCING POINTS—*Sheets:* Midland, Pa., 17; Brackenridge, Pa., 28; Butler, Pa., 7; McKeesport, Pa., 1; Washington, Pa., 38, 39; Baltimore, 37; Middletown, Ohio, 7; Massillon, Ohio, 4; Gary, 1; Bridgeville, Pa., 59; New Castle, Ind., 55; Ft. Wayne, nd., 67; Lockport, N. Y., 46.

Strip: Midland, Pa., 17; Cleveland, 2; Carnegie, Pa., 41; McKeesport, Pa., 54; Reading, Pa., 36; Washington, Pa., 38; W. Leechburg, Pa., 28; Bridgeville, Pa., 59; Detroit, 47; Massillon, Canton, Ohio, 4; Middletown, Ohio, 7; Harrison, N. J., 80; Youngstown, 48; Lockport, N. Y., 46; New Britain, Conn., 58; Sharon, 13; Butler, Pa., 7.

Bars: Baltimore, 7; Duquesne, Pa., 1; Munhall, Pa., 1; Reading, Pa., 36; Titusville, Pa., 59; Washington, Pa., 39; McKeesport, Pa., 1, 54; Bridgeville, Pa., 59; Dunkirk, N. Y., 28; Massillon, Ohio, 4; Chicago, 1; Syracuse N. Y., 17; Watervliet, N. Y., 28; Waukegan, Ill., 2; Lockport, N. Y., 46; Canton, Ohio, 42; *Ft. Worth, Ind., 67.

Wire: Waukegan, Ill., 2; Massillon, Ohio, 4; McKeesport, Pa., 54; Bridgeport, Conn., 44; Ft. Wayne, Ind., 67; Trenton, N. J., 45; Harrison, N. J., 80; Baltimore, 7; Dunkirk, 28.

Structurals: Baltimore, 7; Massillon, Ohio, 4; Chicago, 1, 67; Watervliet, N. Y., 28; Bridgeport, Conn., 44.

Plates: Brackenridge, Pa., 28; Butler, Pa., 7; Chicago, 1; Munhall, Pa., 1; Midland, Pa., 17; New Castle, Ind., 55; Lockport, N. Y., 46; Middletown, 7; Washington, Pa., 39; Cleveland, Massillon, 4.

Forged discs, die blocks, rings: Pittsburgh, 1, 17; Syracuse, 17; Ferndale, Mich., 28.

Forging billets: Midland, Pa., 17; Baltimore, 7; Washington, Pa., 39; McKeesport, 54; Massillon, Canton, Ohio, 4; Watervliet, 28; Pittsburgh, Chicago, 1.

*Add 10 pct to quoted prices.

ELECTRICAL SHEETS

22 gage, HR cut lengths, f.o.b. mill

	Cents per lb.
Armature	*6.20
Electrical	*6.70
Motor	*7.95
Dynamo	8.75
Transformer 72	9.30
Transformer 65	9.85
Transformer 58	10.55
Transformer 52	11.35

PRODUCING POINTS—Beech Bottom, W. Va., 15; Brackenridge, Pa., 28; Follansbee, W. Va., 63; Granite City, Ill., 22*; add 70¢; Indiana Harbor, Ind., 8; Mansfield, Ohio, 75; Niles, Ohio, 64, add 30¢; Vandergrift, Pa., 1; Warren, Ohio, 4; Zanesville, Ohio, 7.

MERCHANT WIRE PRODUCTS

	Base Column Pittsburg, To dealers, f.o.b. mill	Calif.
Std. & coated nails*§§‡	106	125§
Woven wire fence†§§‡	116	139
Fence posts, carloads††	116	...
Single loop bale ties‡	113	137
Gal. barbed wire**§§	126	146
Twisted barbless wire	126	146

*Pgh., Chi., Duluth; Worcester, 6 columns higher; Houston, 8 columns higher; Kansas City, 12 columns higher †15½ gage and heavier. §§Aliquippa 4 col. higher. ††Duluth, Joliet, Johnstown, 112. ‡Sterling, Ill., 6 columns higher; ‡‡Sterling, Ill., 2 columns higher.

	Base per 100 lb	Pittsburg, Calif.
Merch. wire annld.‡§§	$5.35	$6.30
Merch. wire galv.‡	5.60	6.55
Cut nails, carloads‡‡	6.75	...

‡Add 30¢ at Worcester; 20¢ at Chicago; 10¢ at Sparrows Pt. ‡‡Less 20¢ to jobbers. §Torrance 126. §§Aliquippa add 20¢.

PRODUCING POINTS — *Standard, Coated or galvanized nails, woven wire fence, bale ties, and barbed wire:* Alabama City, Ala., 4; Atlanta, 65; Aliquippa, Pa., (except bale ties), 5; Bartonville, Ill. (except bale ties), 34; Chicago, 4; Donora, Pa., 2; Duluth, 2; Fairfield, Ala., 11; Johnstown, Pa. (except bale ties), 3; Joliet, Ill., 2; Kokomo, Ind., 30; Minnequa, Colo., 14; Monessen, Pa. (except bale ties), 18; Pittsburg, Calif., 24; Portsmouth, Ohio, 20; Rankin, Pa., (except bale ties), 2; Sparrows Point (except woven fence), 3; Sterling, Ill., 33; San Francisco (except nails and woven fence), 14; Torrance, Calif. (nails only), 24; Worcester (nails only), 2; Houston (except bale ties), 83; Kansas City, 83.

Fence Posts: Duluth, 2; Johnstown, Pa., 3; Joliet, Ill., 2; Minnequa, Colo., 14; Moline, Ill., 4; Williamsport, Pa., 51.

Cut nails: Wheeling, W. Va., 15; Conshohocken, Pa., 26; Warehame, Mass., 53.

RAILS, TRACK SUPPLIES

F.o.b. mill

Standard rails, 100 lb and heavier, No. 1 quality, per 100 lb	$3.40
Joint bars, per 100 lb	4.40
Light rails, per 100 lb	3.75

	Base Price cents per lb
Track spikes†	5.60
Axles	5.25
Screw spikes	8.60
Tie plates	4.20
Pittsburg, Torr., Calif.; Seattle	4.35
Track bolts, untreated	8.85
Track bolts, heat treated, to railroads	9.10

†Kansas City, 5.85¢.

PRODUCING POINTS—*Standard rails:* Bessemer, Pa., 1; Ensley, Ala., 11; Gary, 1; Indiana Harbor, Ind., 8; Lackawanna, N. Y., 3; Minnequa, Colo., 14; Steelton, 3.

Light rails: All the above except Indiana Harbor and Steelton, plus Fairfield, Ala., 11; Johnstown, 3; Minnequa, 14.

Joint bars: Bessemer, Pa., 1; Fairfield, Ala., 11; Indiana Harbor, Ind., 8; Joliet, Ill., 1; Lackawanna, N. Y., 3; Steelton, Pa., 3; Minnequa, Colo., 14.

Track spikes: Indiana Harbor, Ind., 6, 8; Lebanon, Pa., 3; Minnequa, Colo., 14; Pittsburgh, 5; Chicago, 4; Struthers, 6; Youngstown, 4.

Track bolts: Lebanon, Pa., 3; Minnequa, Colo., 14; Pittsburgh, 77, 78.

Axles: Indiana Harbor, Ind., 79; Johnstown, Pa., 3.

Tie plates: Fairfield, Ala., 11; Gary, 1; Indiana Harbor, Ind., 8; Lackawanna, N. Y., 3; Pittsburg, Calif., 24; Seattle, 62; Steelton, Pa., 3; Torrance, Calif., 24; Minneona, Colo., 14.

Numbers after producing points correspond to steel producers. See key on Steel Price page.

PIPE AND TUBING

Base discounts, f.o.b. mills
Base price about $200.00 per net ton

Standard, T & C

	Black	Galv
Steel, Buttweld*		
½-in.	40½ to 38½	21 to 18½
¾-in.	43½ to 41½	25 to 21½
1-in.	46 to 44	28 to 22
1¼-in.	46½ to 44½	28½ to 23
1½-in.	47 to 45	29 to 23½
2-in.	47½ to 45½	29½ to 24
2½ to 3-in.	48 to 46	30 to 27
Steel, Lapweld		
2-in.	38	16½
2½ to 3-in.	42	21
3½ to 6-in.	43 to 40	22 to 21½
Steel, seamless		
2-in.	36	17½ to 14½
2½ to 3-in.	39	20½ to 18
3½ to 6-in.	41	22½ to 20
Wrought iron, buttweld		
½-in.	+26½	+58½
¾-in.	+16½	+47½
1 & 1¼-in.	+10½	+38½
1½-in.	+ 4½	+35
2-in.	+ 4	+34½
Wrought iron, lapweld		
2-in.	+13½	+42½
2½ to 3½-in.	+11	+38
4-in.	+ 6	+32
4½ to 8-in.	+ 8	+33½
9 to 12-in.	+18	+43

Extra Strong, Plain Ends

Steel, buttweld		
½-in.	39½ to 37½	21½ to 17½
¾-in.	43½ to 41½	25½ to 21½
1-in.	45½ to 43½	28½ to 23½
1¼-in.	46 to 44	29 to 24½
1½-in.	46½ to 44½	29½ to 25
2-in.	47 to 45	30 to 25½
2½ to 3-in.	47½ to 45½	30½ to 23½
Steel, lapweld		
2-in.	37	15½
2½ to 3-in.	42	21
3½ to 6-in.	44½ to 41½	23½ to 24
Steel, seamless		
2-in.	35	17½ to 14½
2½ to 3-in.	38	21½ to 18
3½ to 6-in.	42½	25 to 20
Wrought iron, buttweld		
½-in.	+22	+52½
¾-in.	+15½	+45½
1 to 2-in.	+ 5½	+34½
Wrought iron, lapweld		
2-in.	+10½	+39
2½ to 4-in.	+ 1	+27½
4½ to 6-in.	+ 5	+32
7 & 8-in.	list	+27
9 to 12-in.	+11½	+35

Threads only, butt, lapweld and seamless pipe, 1 pt higher disc. (lower price). Plain ends, butt, lapweld and seamless, 3 in. & under, 3 pts higher disc. Lapweld, seamless, 3½ in. & over, 4 pt higher disc. Buttweld & lapweld steel pipe, jobbers disc. 5 pct. *Fontana, Calif., deduct 11 pts from figures in left col.

BOILER TUBES

Seamless steel, electric welded commercial boiler tubes, locomotive tubes, minimum wall, per 100 ft at mill, c.l. lots, cut lengths 10 to 24 ft.

OD gage in in.	BWG	Seamless H.R.	Seamless C.R.	Electric Weld H.R.	Electric Weld C.D.
2	13	$20.61	$24.24	$19.99	23.51
2½	12	27.71	32.58	26.88	31.60
3	12	30.82	36.27	29.90	35.18
3½	11	38.52	45.38	37.36	43.99
4	10	47.82	56.25	46.39	54.56

Pittsburgh Steel add, H-R: 2 in., 62¢; 2½ in., 84¢; 3 in., 92¢; 3½ in., $1.17; 4 in., $1.45. Add, C-R: 2 in., 74¢; 2½ in., 99¢; 3 in., $1.10; 3½ in., $1.34; 4 in., $1.70.

WAREHOUSE PRICES

Base prices, f.o.b. warehouse, dollars per 100 lb. (Metropolitan area delivery, add 20¢ to base price except Birmingham, San Francisco, Cincinnati, New Orleans, St. Paul (*), add 15¢; Philadelphia, add 25¢, Chicago, add 30¢).

CITIES	SHEETS			STRIP		PLATES	SHAPES	BARS		ALLOY BARS			
	Hot-Rolled	Cold-Rolled (15 gage)	Galvanized (10 gage)	Hot-Rolled	Cold-Rolled		Standard Structural	Hot-Rolled	Cold-Finished	Hot-Rolled, A 4615 As-rolled	Hot-Rolled, A 4140 Ann.	Cold-Drawn, A 4615 As-rolled	Cold-Drawn, A 4140 Ann.
Baltimore	5.15	6.39[1]	6.55[3] 6.65	5.55–5.59[11]	....	5.40–6.04[11]	5.69	5.59	6.19	9.89	9.99	11.12	11.49
Birmingham*	5.15[10]	5.95	6.15[7]	5.10	....	5.55	5.25	5.10	6.88	....	....	....	....
Boston	5.75	6.85[10]	6.94[3] 7.14	5.70	6.90–6.95	6.08	5.75	5.80	6.19 6.89	9.70 9.97	8.50–10.00	11.15	11.45
Buffalo	5.15	5.95	6.94	5.41	7.27	5.65	5.35	5.15	5.75	9.80	9.90	11 05	11.35
Chicago*	5.15	6.20	6.95	5.10	6.30	5.40	5.25	5.10	5.85	9.25	9.55	10.70	11.00
Cincinnati*	5.42–5.97	5.99–6.24	6.39	5.35	....	5.79	5.64	5.35–5.54	5.96 6.25	9.80 9.81	9.90 10.11	11 05 11.26	11.35–11.56
Cleveland	5.15	5.95	7.00–7.10	5.24	6.35	5.52	5.37	5.12	5.75	9.30	9.66	10.81	11.11
Detroit	5.33	6.08–6.33	7.09	5.49	6.43–6.80	5.58 5.79	5.64–5.68	5.39	5.91	9.56	9.86	11.01	11.31
Houston	6.00	....	....	6.10	....	6.00	5.95	6.10	7.80	10.35 10.45	10.50 10.60	11 50	11.95 12.10
Indianapolis	....	....	....	....	7.36	....	....	....	6.15	....	....	....	....
Kansas City	5.75	6.55[20]	7.55	5.70	6.95	6.00	5.85	5.70	6.35	9.85	10.15	11.30	11.60
Los Angeles	5.90	7.45	7.70[2]	5.95	8.70[16]	6.00	5.90	5.90	7.55	10.75	10.75	12.45	12.75
Memphis	5.93	6.68	....	5.98	6.80–6.51	6.08	5.93	5.68	6.51	....	....	....	....
Milwaukee	5.29	6.09	6.84–6.99	5.24	6.32	5.54	5.39	5.24	5.89	9.39	9.69	10.84	11.14
New Orleans*	5.50[1]	6.75 6.85[1]	....	5.55[1]	6.80 6.90[1]	5.85	5.55[1]	5.55[1]	6.75 6.80	....	....	....	....
New York	5 52	6 64	7.54[3]	5.84	6.76	5.88	5.65	5.67	6.44	9.60	9.90	11.08	11.38
Norfolk	6.10[13]	7.00	....	6.30[13]	....	6.15[13]	6.20[13]	6.15[13]	7.20[13]	....	....	....	....
Philadelphia*	6.05	6.20–6.35	6.85[3] 7.25	5.65	6.29	5.65	5.45	5.60	6.21	9.35	9.65	10.80	11.10
Pittsburgh	5.15	5.95	6.60	5.20	5.95–6.00	5.35	5.25	5.10	5.75	9.25	9.55	10.70	11.00
Portland	6.60–7.10[1]	8.40[2]	....	6.85[5]	....	6.40[9]	6.50	6.45–6.45[9]	8.60[14]	12.80[18]	11.60[18]	....	....
Salt Lake City	5.85	6.70	....	7.45	8.75	6.10[3]	5.90	7.35[9]	8.75	....	....	....	....
San Francisco*	6.20	7.60[3]	7.75[3]	6.15	7.85[16]	6.10	6.00	6.00	7.55	10.75	10.75	12.45	12.75
Seattle	6.60[4]	8.15[3]	8.40[3]	6.85[4]	....	6.35[4]	6.20[4]	6.35[4]	8.50[14]	....	11.60[18]	....	13.60[18]
St. Louis	5.48	6.28	7.18	5.43	7.30	5.73	5.58	5.43	6.08	9.58	9.88	11.03	11.33
St. Paul*	5.71	6.51	7.41	5.66	6.16–6.82	5.96	5.81	5.66	6.31	9.81	10.11	11.26	11.56

BASE QUANTITIES (*Standard unless otherwise keyed on prices.*)
Hot-rolled sheets and strip, hot rolled bars and bar shapes, structural shapes, plate, galvanized sheets and cold-rolled sheets: 2000 to 9999 lb. Cold-finished bars; 2000 lb or over. Alloy bars: 1000 to 1999 lb.

All HR products may be combined to determine quantity bracket. All galvanized sheets may be combined to determine quantity bracket. CR sheets may not be combined with each other or with galv. sheets to determine quantity bracket.

Exceptions:
(1) 400 to 1499 lb; (2) 450 to 1499 lb; (3) 300 to 4999 lb; (4) 300 to 9999 lb; (5) 2000 to 5999 lb; (6) 1000 lb and over; (7) 500 to 1499 lb; (8) 400 lb and over; (9) 400 to 9999 lb; (10) 500 to 9999 lb; (11) 400 to 3999 lb; (12) 450 to 3749 lb; (13) 400 to 1999 lb; (14) 1500 lb and over; (15) 1000 to 9999 lb; (16) 6000 lb and over; (17) up to 1999 lb; (18) 1000 to 4999 lb; (19) 1500 to 3499 lb; (20) CR sheets may be combined for quantity; (21) 3 to 24 bundles.

PIG IRON PRICES

Dollars per gross ton. Delivered prices do not include 3 pct tax on freight.

PRODUCING POINT PRICES

Producing Point	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos.
Bethlehem	51.00	51.50	52.00	52.50	.....
Birmingham	45.38	45.88	....	....	....
Buffalo	49 00	49.50	50.00	....	....
Chicago	49.00	49.50	49.50	50.00	.....
Cleveland	49.00	49.50	49.50	50.00	54.00
Daingerfield, Tex.	45.00	45.50	45.50	....	.....
Duluth	49.00	49.50	49.50	50.00	.....
Erie	49.00	49.50	49.50	50.00	.....
Everett		52.25	52.75	.....	.....
Fontana	52.00	52.50		.....	.....
Granite City	50.90	51.40	51.90	.....	.....
Ironton, Utah	46.00	46.50	.....	.....	.....
Pittsburgh	46.00*			47.00	.....
Neville Island	49.00	49.50	49.50	50.00	.....
Geneva, Utah	46.00	46.50			.....
Sharpsville	49.00	49.50	49.50	50.00	.....
Steelton	51.00	51.50	52.00	52.50	57.00
Swedeland	50.00	50.50	51.00	51.50	.....
Toledo	49.00	49.50	49.50	50.00	.....
Troy, N. Y.	51.00	51.50	52.00	....	57.00
Youngstown	49.00	49.50	49.50	50.00	....

DELIVERED PRICES (BASE GRADES)

Consuming Point	Producing Point	Rail Freight Rate	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos.
Boston	Everett	$.60-.80	.....	52.85–53.05	53 55–53.75	.....	.....
Boston	Steelton	6.90	.....	.....	.....	.....	60.90
Brooklyn	Bethlehem	4.29	.....	52.79	53.29	53.79	.....
Cincinnati	Birmingham	6.70	52.08	52.58	.....	.....	.....
Jersey City	Bethlehem	2.63	.....	51.13	51.63	52.13	.....
Los Angeles	Geneva-Ironton-Fontana	7.70	53.70	54.20	.....	.....	.....
Mansfield	Cleveland-Toledo	3.33	49.33	49 83	49.83	50.33	54.33
Philadelphia	Bethlehem	2.39	53.39	53.89	54.39	54.89	.....
Philadelphia	Swedeland	1.44	51.44	51.94	52.44	52.94	.....
Philadelphia	Steelton	3.09	54.09	54.59	55.09	55.59	60.09
Rochester	Buffalo	2.63	51.63	52.13	52.63	.....	.....
San Francisco	Geneva-Ironton-Fontana	7.70	53.70	54.20	.....	.....	.....
Seattle	Geneva-Ironton-Fontana	7.70	53.70	54.20	.....	.....	.....
St. Louis	Granite City	0.75 Arb.	48.65	49.15	49.65	.....	.....
Syracuse	Buffalo	3.58	52.58	53.08	53.58	.....	.....

* *Monessen, $51.00.*

Producing point prices are subject to switching charges; silicon differential (not to exceed 50c per ton for each 0.25 pct silicon content in excess of base grade which is 1.75 to 2.25 pct for foundry iron); phosphorus differentials, a reduction of 38c per ton for phosphorus content of 0.70 pct and over; manganese differentials, a charge not to exceed 50c per ton for each 0.50 pct manganese content in excess of 1.00 pct. $2 per ton extra may be charged for 0.5 to 0.75 pct nickel content and $1 per ton extra for each additional 0.25 pct nickel.

Silvery iron (blast furnace) silicon 6.01 to 6.50 pct C/L per g.t., f.o.b. Jackson, Ohio—$57.00; f.o.b. Buffalo, $58.25. Add $1.50 per ton for each additional 0.50 pct $1 up to 17 pct. Add 50c per ton for each 0.50 pct Mn over 1.00 pct. Add $1.00 per ton for 0.75 pct or more P. Bessemer ferrosilicon prices are $1.00 per ton above silvery iron prices of comparable analysis.

Charcoal pig iron base price for low phosphorus $62.00 per gross ton, f.o.b. Lyle, Tenn. Delivered Chicago, $70.56. High phosphorus charcoal pig iron is not being produced.

BOLTS, NUTS, RIVETS, SCREWS

Consumer Prices

(Bolts and nuts, f.o.b. mill, Pittsburgh, Cleveland, Birmingham or Chicago)
Base discount

Machine and Carriage Bolts

	Pct Off List Less Case	C.
½ in. & smaller x 6 in. & shorter	23	35
9/16 in. & ⅝ in. x 6 in. & shorter	26	37
¾ in. & larger x 6 in. & shorter	26	37
All diam. longer than 6 in.	22	34
Lag, all diam. x 6 in. & shorter	30	41
Lag, all diam. longer than 6 in.	28	39
Plow bolts	40	—

Nuts, Hot Pressed, Cold Punched—Sq

	Pct Off List Less Keg (Reg)	K.	Less Keg (Hvy)	K.
½ in. & smaller	23	35	23	35
9/16 in. & ⅝ in.	20	32	15	28
¾ in. to 1½ in. inclusive	23	35	10	24
1⅝ in. & larger	16	29	10	24

Nuts, Hot Pressed—Hexagon

½ in. & smaller	33	43	29	40
9/16 in. & ⅝ in.	24	36	15	28
¾ in. to 1½ in. inclusive	20	32	11	25
1⅝ in. & larger	17	30	11	25

Nuts, Cold Punched—Hexagon

½ in. & smaller	33	43	29	40
9/16 in. & ⅝ in.	30	41	25	37
¾ in. to 1½ in. inclusive	27	38	20	32
1⅝ in. & larger	20	32	15	28

Nuts, Semi-Finished—Hexagon

	Reg		Hvy	
½ in. & smaller	41	50	35	45
9/16 in. & ⅝ in.	36	46	29	40
¾ in. to 1½ in. inclusive	31	42	23	35
1⅝ in. & larger	21	33	17	30
	Light			
7/16 in. & smaller	41	50		
½ in. thru ⅝ in.	35	45		
¾ in. to 1½ in. inclusive	33	43		

Broken case or keg add 15 pct.

Stove Bolts

	Pct Off List
Packaged, steel, plain finished	56—10
Packaged, plated finish	41—10
Bulk, plain finish**	67*

*Discounts apply to bulk shipments in not less than 15,000 pieces of a size and kind where length is 3-in. and shorter; 5000 pieces for lengths longer than 3-in. For lesser quantities, packaged price applies.

**Zinc, Parkerized, cadmium or nickel plated finishes add 6¢ per lb net. For black oil finish, add 2¢ per lb net.

Rivets

	Base per 100 lb
½ in. & larger	$7.25
	Pct Off List
7/16 in. & smaller	43

F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham, Lebanon, Pa.

Cap and Set Screws

(In bulk)	Pct Off List
Hexagon head cap screws, coarse or fine thread, ¼ in. thru ⅝ in. x 6 in., SAE 1020, bright	58
¾ in. thru 1 in. up to & including 6 in.	53
¼ in. thru ⅝ in. x 6 in. & shorter high C double heat treat	51
⅝ in. thru 1 in. up to & including 6 in.	46
Milled studs	23
Flat head cap screws, listed sizes	24
Fillister head cap, listed sizes	43
Set screws, sq head, cup point, 1 in. diam. and smaller x 6 in. & shorter	57

LAKE SUPERIOR ORES

(51.50% Fe; natural content, delivered lower lake ports)

	Per gross ton
Old range, bessemer	$8.10
Old range, nonbessemer	7.95
Mesabi, bessemer	7.85
Mesabi, nonbessemer	7.70
High phosphorus	7.70

After Jan. 25, 1950, increases or decreases in Upper Lake rail freight, dock handling charges and taxes are for buyers' account.

ELECTRODES

Cents per lb, f.o.b. plant, threaded electrodes with nipples, unboxed

Diam. in in.	Length in in.	Cents Per lb
	GRAPHITE	
17, 18, 20	60, 72	17.00¢
8 to 16	48, 60, 72	17.00¢
7	48, 60	18.64¢
6	48, 60	19.95¢
4, 5	40	20.48¢
3	40	21.53¢
2½	24, 30	22.05¢
2	24, 30	24.15¢
	CARBON	
40	100, 110	7.65¢
35	65, 110	7.65¢
30	65, 84, 110	7.65¢
24	72 to 104	7.65¢
20	84, 90	7.65¢
17	60, 72	7.65¢
14	60, 72	8.16¢
10, 12	60	8.42¢
8	60	8.67¢

CLAD STEEL

Base prices, cents per pound, f.o.b. mill

Stainless-carbon	Plate	Sheet
No. 304, 20 pct,		
Coatesville, Pa. (21)	*28.00	
Washgtn, Pa. (39)	*28.00	
Claymont, Del. (29)	*28.00	
Conshohocken, Pa. (26)		*24.00
New Castle, Ind. (55)	*26.50	*25.50
Nickel-carbon		
10 pct, Coatesville (21)	31.00	
Inconel-carbon		
10 pct, Coatesville (21)	39.00	
Monel-carbon		
10 pct, Coatesville (21)	32.00	
No. 302 Stainless-copper-stainless, Carnegie, Pa. (60)		77.00
Aluminized steel sheets, hot dip, Butler, Pa. (7)		7.75

* Includes annealing and pickling, or sandblasting.

TOOL STEEL

F.o.b. mill

W	Cr	V	Mo	Co	Base per lb
18	4	1	—	—	$1.00
18	4	1	—	5	$1.565
18	4	2	—	—	$1.13
1.5	4	1.5	8	—	71.5¢
6	4	2	6	—	76.5¢

High-carbon-chromium	57.5¢
Oil hardened manganese	32¢
Special carbon	29.5¢
Extra carbon	24.5¢
Regular carbon	21¢

Warehouse prices on and east of Mississippi are 3¢ per lb higher. West of Mississippi, 5¢ higher.

COKE

	Net Ton
Furnace, beehive (f.o.b. oven) Connellsville, Pa.	$14.00 to $14.50
Foundry, beehive (f.o.b. oven) Connellsville, Pa.	$16.50 to $17.00
Foundry, oven coke	
Buffalo, del'd	$25.35
Chicago, f.o.b.	21.00
Detroit, f.o.b.	23.00
New England, del'd	24.30
Seaboard, N. J., f.o.b.	22.00
Philadelphia, f.o.b.	22.10
Swedeland, Pa., f.o.b.	22.00
Painesville, Ohio, f.o.b.	23.25
Erie, del'd	$22.29 to 22.50
Cleveland, del'd	22.62
Cincinnati, del'd	22.71
St. Paul, f.o.b.	21.00
St. Louis, f.o.b.	24.90
Birmingham, del'd	20.79

FLUORSPAR

Washed gravel fluorspar, f.o.b. cars, Rosiclare, Ill. Base price, per ton net: Effective CaF, content:

70% or more	$41.00
60% or less	38.00

C-R SPRING STEEL

Base per pound f.o.b. mill

0.26 to 0.40 carbon	4.50¢
0.41 to 0.60 carbon	5.95¢
0.61 to 0.80 carbon	6.55¢
0.81 to 1.05 carbon	8.50¢
1.06 to 1.35 carbon	10.80¢

Worcester, add 0.30¢; Sharon, New Britain, Carnegie, add 0.35¢.

Prices Continued on Page 118

How to save $4247 a year

by investing only $2471!

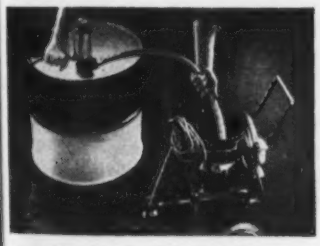
It all started with a test on a single mammoth high speed machine, in a Chicago plant* where machine break-downs and bearing replacements were frequent, stock spoilage and rejects were high, and oil consumption ran to $5664 a year!

After a month's test of Alemite Centralized Lubrication on this one machine, the system was installed on all five other machines in the plant at a total cost of only $2471. Since that time, there has not been a single break-down or bearing loss, stock spoilage and rejects have been greatly reduced, and lubricant cost has been cut to $1417! This is an annual saving of $4247, *in addition* to more production gained from each machine, and a marked product improvement for increased customer satisfaction!

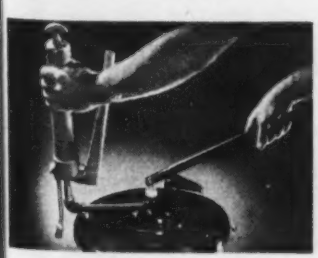
No matter what size or type of plant you operate, an Alemite Lubrication Engineer can show you dozens of ways of making worthwhile savings through more efficient handling of petroleum products. These are facts which you can readily confirm in your own time studies. The Alemite man will cooperate fully with your plant engineers in setting up a test. Contact your local Alemite Industrial Distributor now. Or send for free booklet "11 Ways to Cut Production Costs." Mail coupon below to Alemite, Dept. A-00, 1850 Diversey Parkway, Chicago 14, Illinois.

**Name on request.*

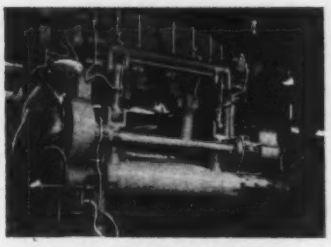
Alemite Cuts Costs 3 Ways



1. ***In Transferring Lubricants...*** by eliminating mess, expensive contamination—and cutting man hours 63% for every 100 pounds of lubricant transferred.



2. ***In Loading Grease Guns . . .*** by saving 3¾ man hours for every 100 pounds of lubricant loaded into hand guns.



3. ***In Applying Lubricants . . .*** by saving up to 23.9 man hours for every 100 pounds of lubricant applied to bearings.

ALEMITE

MEANS EVERYTHING FOR LUBRICATION

1. Methods 2. Lubricants 3. Equipment

Another Product of Stewart-Warner

FREE! New Booklet

"11 Ways to Cut Production Costs"...

(simply attach to your letterhead)

Alemite, Dept. N-100
1850 Diversey Parkway, Chicago 14, Ill.

Please send me without charge or obligation your booklet "11 Ways to Cut Production Costs."

*Name*_____

*Company*_____

*City*_____ *State*_____

REFRACTORIES

Fire Clay Brick *(F.o.b. works) Carloads, Per 1000*

First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add $5) $94.60
No. 1 Ohio 88.00
Sec. quality, Pa., Md., Ky., Mo., Ill. $8.00
No. 2 Ohio 79.20
Ground fire clay, net ton, bulk (except Salina, Pa., add $1.50) 13.75

Silica Brick

Mt. Union, Pa., Ensley, Ala. $94.60
Childs, Pa. 99.00
Hays, Pa. 100.10
Chicago District 104.50
Western Utah and Calif. 111.10
Super Duty, Hays, Pa., Athens, Tex., Chicago 111.10
Silica cement, net ton, bulk, Eastern (except Hays, Pa.) 16.50
Silica cement, net ton, bulk, Hays, Pa. 18.70
Silica cement, net ton, bulk, Ensley, Ala. 17.60
Silica cement, net ton, bulk, Chicago District 17.60
Silica cement, net ton, bulk, Utah and Calif. 24.75

Chrome Brick *Per Net Ton*

Standard chemically bonded, Balt., Chester $77.00

Magnesite Brick

Standard, Baltimore $99.00
Chemically bonded, Baltimore 88.00

Grain Magnesite *St. %-in. grains*

Domestic, f.o.b. Baltimore, in bulk fines removed $62.70
Domestic, f.o.b. Chewelah, Wash., in bulk 36.30
in sacks 41.80

Dead Burned Dolomite

F.o.b. producing points in Pennsylvania, West Virginia and Ohio, per net ton, bulk Midwest, add 10¢; Missouri Valley, add 20¢... $13.00

METAL POWDERS

Per pound, f.o.b. shipping point, in ton lots, for minus 100 mesh.

Swedish sponge iron c.l.f. New York, ocean bags... 7.4¢ to 9.0¢
Canadian sponge iron, del'd, in East ..... 10.00¢
Domestic sponge iron, 98+% Fe, carload lots ..... 9.0¢ to 15.0¢
Electrolytic iron, annealed, 99.5+% Fe ..... 36.0¢ to 39.5¢
Electrolytic iron unannealed, minus 325 mesh, 99+% Fe 48.5¢
Hydrogen reduced iron, minus 300 mesh, 98+% Fe.. 63.0¢ to 80.0¢
Carbonyl iron, size 5 to 10 micron, 98%, 99.8+% Fe. 70.0¢ to $1.35
Aluminum ..... 29.00¢
Brass, 10 ton lots..... 30.00¢ to 33.25¢
Copper, electrolytic 10.25¢ plus metal value
Copper, reduced ... 10.00¢ plus metal value
Cadmium 100-199 lb ..95¢ plus metal value
Chromium, electrolytic, 99% min., and quantity ... $3.50
Lead ..... 6.5¢ plus metal value
Manganese ..... 52.00¢
Molybdenum, 99% $2.65
Nickel, unannealed ..... 75.5¢
Nickel, annealed ..... 81.5¢
Nickel, spherical, unannealed 78.5¢
Silicon ..... 34.00¢
Solder powder..6.5¢ to 8.5¢ plus met. value
Stainless steel, 302 ..... 75.00¢
Tin ..... 11.00¢ plus metal value
Tungsten, 99% $3.40
Zinc, 10 ton lots ..... 20.50¢ to 23.85¢

CAST IRON WATER PIPE

Per net ton

6 to 24-in., del'd Chicago..$95.30 to $98.80
6 to 24-in., del'd N .Y. ... 94.50 to 95.50
6 to 24-in., Birmingham ... 81.50 to 86.00
6-in. and larger, f.o.b. cars, San Francisco, Los Angeles, for all rail shipment; rail and water shipment less .....$108.50 to $113.00
Class "A" and gas pipe, $5 extra; 4-in. pipe is $5 a ton above 6-in.

Ferrochrome

Contract prices, cents per pound, contained Cr, lump size, bulk, in carloads, delivered. (65-72% Cr, 2% max. Si.)

0.06% C .... 28.75 0.20% C 27.75
0.10% C .... 28.25 0.50% C 27.50
0.15% C .... 28.00 1.00% C 27.25
2.00% C 27.00
65-69% Cr, 4-9% C 20.50
62-66% Cr, 4-6% C, 6-9% Si. 21.35

High-Nitrogen Ferrochrome

Low-carbon type: 67-72% Cr, 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome price schedule. Add 5¢ for each additional 0.25% N.

S. M. Ferrochrome

Contract price, cents per pound, chromium contained, lump size, delivered.

High carbon type: 60-65% Cr, 4-6% Si, 4-6% Mn, 4-6% C.
Carloads 21.60
Ton lots 23.75
Less ton lots 25.25

Low carbon type: 62-66% Cr, 4-6% Si, 4-6% Mn, 1.25% max. C.
Carloads 27.75
Ton lots 30.05
Less ton lots 31.85

Chromium Metal

Contract prices, per lb chromium contained packed, delivered, ton lots. 97% min. Cr, 1% max. Fe.

0.20% Max. C. $1.09
0.50% max. C. 1.05
.00 min. C 1.04

Low Carbon Ferrochrome Silicon

(Cr 34-41%, Si 42-49%, C 0.05% max.) Contract price, carloads, f.o.b. Niagara Falls, freight allowed; lump 4-in. x down, bulk 2-in. x down, 20.50¢ per lb of contained Cr plus 11.30¢ per lb of contained Si.

Bulk 1-in. x down, 20.65¢ per lb contained Cr plus 11.50¢ per lb contained Si.

Calcium-Silicon

Contract price per lb of alloy, dump, delivered.

30-33% Ca, 60-65% Si, 3.00% max. Fe.
Carloads 17.90
Ton lots 21.00
Less ton lots 22.50

Calcium-Manganese—Silicon

Contract prices, cents per lb of alloy, lump, delivered.

16-20% Ca, 14-18% Mn, 53-59% Si.
Carloads 19.25
Ton lots 21.55
Less ton lots 22.55

CMSZ

Contract price, cents per pound of alloy, delivered.

Alloy 4: 45-49% Cr, 4-6% Mn, 18-21% Si, 1.25-1.75% Zr, 3.00-4.5% C.

Alloy 5: 50.56% Cr, 4-6% Mn, 13.50-16.00% Si, 0.75 to 1.25% Zr, 3.50-5.00% C.
Ton lots 19.75
Less ton lots 21.00

V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. V-5: 38-42% Cr, 17-19% Si, 8-11% Mn.
Ton lots ..... 15.75¢
Less ton lots ..... 17.00¢

Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.
Carload packed..... 17.00¢
Ton lots to carload packed ..... 18.00¢
Less ton lots ..... 19.50¢

SMZ

Contract price, cents per pound of alloy, delivered, 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe, ½ in. x 12 mesh.
Ton lots 17.25
Less ton lots 18.50

FERROALLOYS

Ferromanganese

78-82% Mn. maximum contract base price, gross ton, lump size.
F.o.b. Birmingham $174
F.o.b. Niagara Falls, Alloy, W. Va., Welland, Ont., Ashtabula, O. $172
F.o.b. Johnstown, Pa. $174
F.o.b. Sheridan, Pa. $172
F.o.b. Etna, Clairton, Pa. $175
$2.00 for each 1% above 82% Mn, penalty, $2.15 for each 1% below 78%.

Briquets—Cents per pound of briquet, delivered, 66% contained Mn.
Carload, bulk 10.45
Ton lots 12.05

Spiegeleisen

Contract prices gross ton, lump, f.o.b.

	16-19% Mn 3% max. Si	19-21% Mn 3% max. Si
Palmerton, Pa.	$61.00	$65.00
Pgh. or Chicago	65.00	66.00

Manganese Metal

Contract basis, 2 in. x down, cents per pound of metal, delivered.

96% min. Mn, 0.2% max. C, 1% max. Si, 2% max. Fe.
Carload, packed 29.75
Ton lots 31.25

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, cents per pound.
Carloads 28
Ton lots 30
Less ton lots 32

Medium Carbon Ferromanganese

Mn 80% to 85%, C 1.25 to 1.50. Contract price, carloads, lump, bulk, delivered, per lb. of contained Mn ..... 18.15¢

Low-Carbon Ferromanganese

Contract price, cents per pound Mn contained, lump size, del'd., Mn. 85-90%.

	Carloads	Ton	Less
0.07% max. C, 0.06% P, 90% Mn	25.25	27.10	28.30
0.07% max. C.....	24.75	26.60	27.80
0.15% max. C.....	24.25	26.10	27.30
0.30% max. C.....	23.75	25.60	26.80
0.50% max. C.....	23.25	25.10	26.30
0.75% max. C, 7.00% max. Si.....	20.25	22.10	23.30

Silicomanganese

Contract basis, lump size, cents per pound of metal, delivered, 65-68% Mn, 18-20% Si, 1.5% max. C. For 2% max. C, deduct 0.2¢.
Carload bulk 8.95
Ton lots 10.60
Briquet, contract basis carlots, bulk delivered, per lb of briquet..... 10.30
Ton lots 11.90

Silvery Iron (electric furnace)

Si 14.01 to 14.50 pct, f.o.b. Keokuk, Iowa, or Wenatchee, Wash., $82.00 gross ton, freight allowed to normal trade area. Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., $80.00. Add $1.00 per ton for each additional 0.50% Si up to and including 18%. Add $1.00 for each 0.50% Mn over 1%.

Silicon Metal

Contract price, cents per pound contained Si, lump size, delivered, for ton lots packed.
96% Si, 2% Fe..... 20.70
97% Si, 1% Fe..... 21.10

Silicon Briquets

Contract price, cents per pound of briquet bulk, delivered, 40% Si, 1 lb Si briquets.
Carload, bulk 6.30
Ton lots 7.90

Electric Ferrosilicon

Contract price, cents per pound contained Si, lump, bulk, carloads, delivered.

25% Si..... 17.00 75% Si..... 13.50
50% Si ..... 11.30 85% Si..... 14.65
90-95% Si 16.50

Calcium Metal

Eastern zone contract prices, cents per pound of metal, delivered.

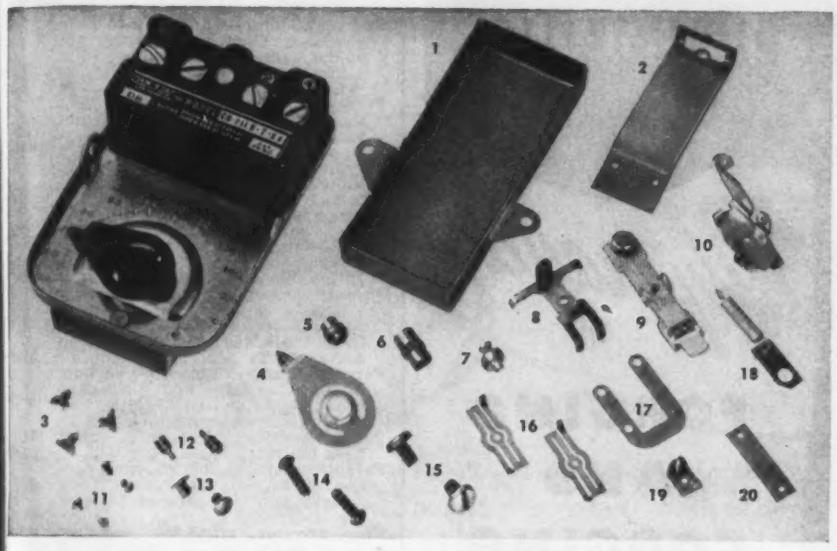
	Cast	Turnings	Distilled
Ton lots	$2.05	$2.95	$3.75
Less ton lots..	2.40	3.30	4.55

Prices Continued on Page 118B

COPPER ALLOY BULLETIN

REPORTING NEWS AND TECHNICAL DEVELOPMENTS OF COPPER AND COPPER-BASE ALLOYS

Prepared Each Month by BRIDGEPORT BRASS COMPANY "Bridgeport" Headquarters for BRASS, BRONZE and COPPER



Hot water thermostat and component parts—Courtesy Camstat, Inc., Los Angeles, Calif.

Seven Copper Alloys Resist Corrosion in Bi-Metal Switch

Rusting and other forms of corrosion change the electrical characteristics of parts, decrease strength of springs and jam bearing points in small control instruments.

To combat such conditions, copper-base alloys were primarily selected for all functional parts in the illustrated water heater thermostat. This unit operates with a bi-metal actuator which curves forward as the result of one metal expanding more rapidly than another.

Since each copper alloy has different mechanical and physical characteristics, seven were used in this unit, and, in some cases, several tempers for each alloy.

Cartridge brass, 70% copper and 30% zinc, because of its ability to withstand heavy working better than high brass, is used for the cover (1), bracket (2), pointer (4), yoke (9), and staple (3). Half hard metal was necessary to permit drawing, forming and bending of the cover, pointer and yoke, and in the staple to permit the prongs to be bent at assembly. The bracket is spring hard (8 numbers) as it acts as a flat spring.

Phosphor bronze Grade A, 95% copper, 5% tin, 0.15 phosphor, produces flat springs in light gages (0.006 and up) due to its excellent spring properties and resistance to fatigue. This alloy is used for the contact springs (16), push button spring (17), spring link (18) and flat spring (20). All have spring temper.

Nickel Silver Grades A, B

Two grades of Nickel silver find use in this unit. In the pivot bracket (8) grade B, 55% copper, 18% nickel and the remainder zinc, gives the part fine spring characteristics, high strength (better than 90,000 psi in its extra hard temper), and the ductility in this hard state to permit heavy bending and forming.

Grade A, 65% copper, 18% nickel and remainder zinc, has greater ductility than B which permits dimpling, bending and forming on the actuating lever (10). The base metal is hard (4 numbers) and has a tensile strength of 85,000. The coldworking done on this lever increases its strength to around 90,000.

Several Parts Machined

Free machining brass rod, with the highest machinability of the copper alloys, can be accurately machined with good finishes at high speeds. For these reasons, it is used for the counterweight (shown on assembly 9), adjusting nut (5), terminal (6), stub (7), and calibrating screw (12). This alloy also has a conductivity 26% that of copper.

The hollow rivets (11) and (13) are produced in cold headers from 70-30 (cartridge brass) wire. When the hollow rivets are such that drilling is required rather than extrusion in the header, a light leaded wire is used (65% copper, 0.3% lead and remainder zinc) to facilitate the drilling.

The cold headed and roll threaded screws (14) and (15) are made from high brass, 65% copper, 35% zinc. Although not as ductile as the cartridge brass used in the hollow rivets, it is sufficiently ductile for medium-sized heads and roll threading.

Silver Rivets

The hollow rivets used for electrical contacts in the switch under the silver links are also of silver to eliminate danger of arcing.

Bridgeport's laboratory can be of help to product engineers in the selecting of the best alloy from a functional as well as fabricating standpoint. Write the nearest district office or contact Bridgeport directly.

Other Ferroalloys

Alsifer, 20% Al, 40% Si, 40% Fe, contract basis, f.o.b. Suspension Bridge, N. Y.	
Carload	7.65¢
Ton lots	9.05¢
Calcium molybdate, 45-40%, f.o.b. Langeloth, Pa., per pound contained Mo	96¢
Ferrocolumbium, 50-60%, 2 in x D, contract basis, delivered, per pound contained Cb.	
Ton lots	$3.50
Less ton lots	3.55
Ferro-Tantalum-columbium, 20% Ta, 40% Cb, 0.30 C. Contract basis, delivered, ton lots, 2 in. x D, per lb of contained Cb plus Ta	$2.67
Ferromolybdenum, 55-75%, f.o.b. Langeloth, Pa., per pound contained Mo	$1.22
Ferrophosphorus, electrolytic, 23-26%, car lots, f.o.b. Siglo, Mt. Pleasant, Tenn., $3 unitage, per gross ton	$65.00
10 tons to less carload	75.00
Ferrotitanium, 40%, regular grade, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti	$1.28
Ferrotitanium, 25%, low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti	$1.40
Less ton lots	$1.45
Ferrotitanium, 15 to 19%, high carbon, f.o.b. Niagara Falls, N. Y., freight allowed, carload per net ton	$167.00
Ferrotungsten, standard, lump or ¼ x down, packed, per pound contained W, 5 ton lots, delivered	$2.50
Ferrovanadium, 35-55%, contract basis, delivered, per pound, contained V.	
Openhearth	$2.90
Crucible	3.00
High speed steel (Primos)	3.10
Molybdic oxide, briquets or cans, per lb contained Mo, f.o.b. Langeloth, Pa.	$1.04
bags, f.o.b. Washington, Pa., Langeloth, Pa.	$1.03
Simanal, 20% Si, 20% Mn, 20% Al, contract basis, f.o.b. Philo, Ohio, freight allowed, per pound	
Carload, bulk, lump	11.00¢
Ton lots, bulk lump	11.50¢
Less ton lots, lump	12.25¢
Vanadium pentoxide, 88-92% V_2O_5 contract basis, per pound contained V_2O_5	$1.20
Zirconium, 35-40%, contract basis, f.o.b. plant, freight allowed, per pound of alloy.	
Ton lots	21.00¢
Zirconium, 12-15%, contract basis, lump, delivered, per lb of alloy.	
Carload, bulk	6.60¢

Boron Agents

Contract prices per lb of alloy, del.	
Borosil, f.o.b. Philo, Ohio, freight allowed, B 3-4%, Si 40-45%, per lb contained B	$4.25
Bortam, f.o.b. Niagara Falls	
Ton lots, per pound	45¢
Less ton lots, per pound	50¢
Carbortam, Ti 15-21%, B 1-2%, Si 2-4%, Al 1-2%, C 4.5-7.5% f.o.b. Suspension Bridge, N. Y., freight allowed.	
Ton lots, per pound	10.00¢
Ferroboron, 17.50% min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D. Ton lots	$1.30
F.o.b. Wash., Pa.; 100 lb, up	
10 to 14% B	.75
14 to 19% B	1.20
19% min. B	1.10
Grainal, f.o.b. Bridgeville, Pa., freight allowed, 100 lb and over.	
No. 1	92¢
No. 6	63¢
No. 79	45¢
Manganese—Boron 75.00% Mn, 15-20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, delivered.	
Ton lots	$1.40
Less ton lots	1.57
Nickel—Boron 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, delivered.	
Less ton lots	$1.90
Silcaz, contract basis, delivered.	
Ton lots	45.00¢

The big parts are ready ...we cleaned 'em with the OAKITE Steam Gun

Here's an easy, low-cost way to clean metal parts that are too large to be soaked in tanks or conveyed through washing machines.

Just use the Oakite Solution-Lifting Steam Gun to apply an Oakite cleaning solution* under about 40 pounds of steam pressure. Oil, grease and other dirts leave metal surfaces in a hurry.

After being cleaned by the Oakite Steam Gun, large metal parts are ready for inspection, assembly, further machining, overhaul or repair. A subsequent Oakite surface treatment effectively prepares the metal for painting.

ALSO STRIPS PAINT Paint and other organic coatings disappear rapidly when the same Oakite Steam Gun is used to apply an Oakite stripping solution** under low pressure.

FREE Write today for illustrated folder containing more information on the Oakite Solution-Lifting Steam Gun and the many cleaning operations on which it saves time and money.

* Oakite Composition No. 92 and Oakite Composition No. 20 provide excellent solutions for heavy-duty steam cleaning.

** Oakite Stripper, Oakite Stripper M-3 and Oakite Test X form solutions that strip paint effectively when applied by the steam-gun method.

OAKITE

TRADE MARK REG. U. S. PAT. OFF.

SPECIALIZED INDUSTRIAL CLEANING
MATERIALS • METHODS • SERVICE

Technical Service Representatives Located in Principal Cities of United States and Canada

OAKITE PRODUCTS, INC.
18 Thames Street, New York 6, N. Y.

Send me, without obligation, folder F7338 describing the Oakite Steam Gun.

Name.....

Company.....

Address.....

FREE

PUBLICATIONS

Continued from Page 34

tanks and installations of the auto induction, pressure line inductor, "around - the - pump" proportioner, self-contained and motor fire apparatus types. A selector valve for use with wetting agent and foam compound carried on motor fire apparatus is also shown. *Pyrene Mfg. Co.*

For free copy insert No. 8 on postcard, p. 35.

Thread and Form Rolling

Namco triple roll hydraulic thread and form rolling machines are covered in a new 12-p. bulletin illustrating such features as straight line support for positive action and interchangeable heads for a variety of work and economy of investment. The continuous feed-through and accessibility for adjustment are described and specifications are listed. *National Acme Co.*

For free copy insert No. 9 on postcard, p. 35.

Smaller Units Available

Newly developed, smaller sized two-bearing Foundromatic shakeouts, ranging from 2000 to 5000 lb capacity, are described in a new leaflet. Designed to meet the needs of smaller foundries, the shakeout is available with portable base so that the unit, complete with motor, drive and starter, can be moved around the foundry to various positions. The leaflet provides design features, sizes and capacities. *Allis-Chalmers Mfg. Co.*

For free copy insert No. 10 on postcard, p. 35.

Soft-Metal Melting

Prepared specifically to help the printing trades and others who melt or alloy the soft metals in open pots, a new 20-p. booklet, entitled "Automatic Gas Firing Systems for Soft Metal Melting & Pot Furnaces," contains full information on three basic types of systems—and on the instruments, burners, diaphragm and solenoid valves,

Turn to Page 120

FREE PUBLICATIONS

Continued

time clocks, blowers and other equipment involved therein. The bulletin also gives wiring diagrams, and specifications on pots and furnaces. Of the three automatic systems described, one is designed for electric control, one for mechanical control, and one for 2-stage heating. *Partlow Corp.*

For free copy insert No. 11 on postcard, p. 35.

Speed Reducers

Specifications and advantages of Falk herringbone speed reducers are described in a new 24-p. catalog. Sections of the booklet deal with method of selection, AGMA service factors, horsepower ratings, and torque capacities. Dimensions of the various units are shown along with information on backstops and Steelflex couplings. An order guide is included and one page is devoted to other Falk products. *Falk Corp.*

For free copy insert No. 12 on postcard, p. 35.

Tank Heating & Cooling

Ten leading advantages of Platecoils that simplify tank heating and cooling problems are listed in a new 6-p. folder. Construction features that result in low installation, operation and maintenance costs are described, specifications for various models are included, and typical installation is shown. An extensive list suggests some of the many applications for these units. *Kold-Hold Mfg. Co.*

For free copy insert No. 13 on postcard, p. 35.

Helical Gear Drives

The new improved Foote Bros. Maxi-Power enclosed helical gear drives, in single, double and triple reduction types, are described in a new 18-p. engineering manual. Principal features, dimensions, and a series of rating tables are contained, along with illustrations of the company's complete line of enclosed gear drives. Service factors and load characteristics are also dealt with. *Foote Bros. Gear & Machine Corp.*

For free copy insert No. 14 on postcard, p. 35.

Resume your reading on Page 35

The Clearing House

NEWS OF USED, REBUILT AND SURPLUS MACHINERY

Joint Industry Group—Frank Laurens, Harvey Goldman and J. M. P. Fox, of MDNA, represented the used machinery industry at the October 10 meeting of the Joint Industry Machine Tool Preparedness Reserve Group in Toronto. Meeting with the group were representatives of the National Security Resources Board and the National Production Authority machinery section of the Department of Commerce.

This group, representing all branches of the machine tool industry, meets regularly to plan for industry mobilization in the case of war, and expects to form the nucleus of an official advisory group should war come.

The MDNA representatives brought up for discussion at the meeting such subjects as voluntary used machinery price ceilings, taking a national inventory of used machinery stocks, rebuilding of defense-stockpiled machine tools, and shortages of parts used for machine rebuilding.

Committee Appointed—At the Toronto meeting, a four-man committee was appointed to work with the Department of Commerce. Members of the committee include two representatives of machine tool builders and two of new machinery distributors. Frank Laurens, MDNA president, will be an adviser to this committee.

The importance of the used machinery industry to the defense effort in World War II, and its readiness to assume the same role again if necessary, was stressed by Frank Laurens in a speech to a luncheon meeting of the Joint Industry Group.

Los Angeles NISA—A. C. Wahlgren, Los Angeles Regional Office, U. S. Department of Commerce, was guest speaker at the October 11 meeting of the Los Angeles Chapter of the National Industrial Service Assn. His topic was government controls. Presiding at the meeting was William C. Hill.

New officers elected at this meeting include W. M. Hogue, Larsen-Hogue Electric Co., chairman; Ray Smallcomb, Smallcomb Electric Co., vice-chairman; Earl Sweinhart, Sweinhart Electric Co., secretary and treasurer; and W. C. Hill, Hill Electric Co., and George Hennigh, Bear State Electric Co., directors.

Philadelphia MDNA—John Hyman presided and Frank Laurens was featured speaker at a meeting of the Philadelphia chapter of the Machinery Dealers' National Assn. at the Alpha Club, September 26. Mr. Laurens, MDNA president, reported on used machinery sales prospects in Europe. Other speakers were J. M. P. Fox, who discussed used machinery standards, and Irving Harburger, who reported on the MDNA national board of directors' meeting held recently in New York.

Older Machines Move—Though buyer resistance to machine tools more than 10 years old is still strong, the market for such equipment is picking up slightly. Trade sources report that long delivery on new machines, plus the increasing shortage of relatively new used machines, is awakening interest in older equipment.

Whether this trend will grow stronger as defense orders begin to trickle down to subcontractors, or will be counterbalanced by the effects of increasing new machine production, remains to be seen. A few months ago most new machine builders were not overly busy, and the effects of their stepped-up production are yet to be felt. Likewise, the great flow of military orders is only beginning.

New machinery makers, however, are beginning to experience serious shortages of steel, electric controls, roller bearings, and other items. If this doesn't clear up, they may not be able to get into full production.